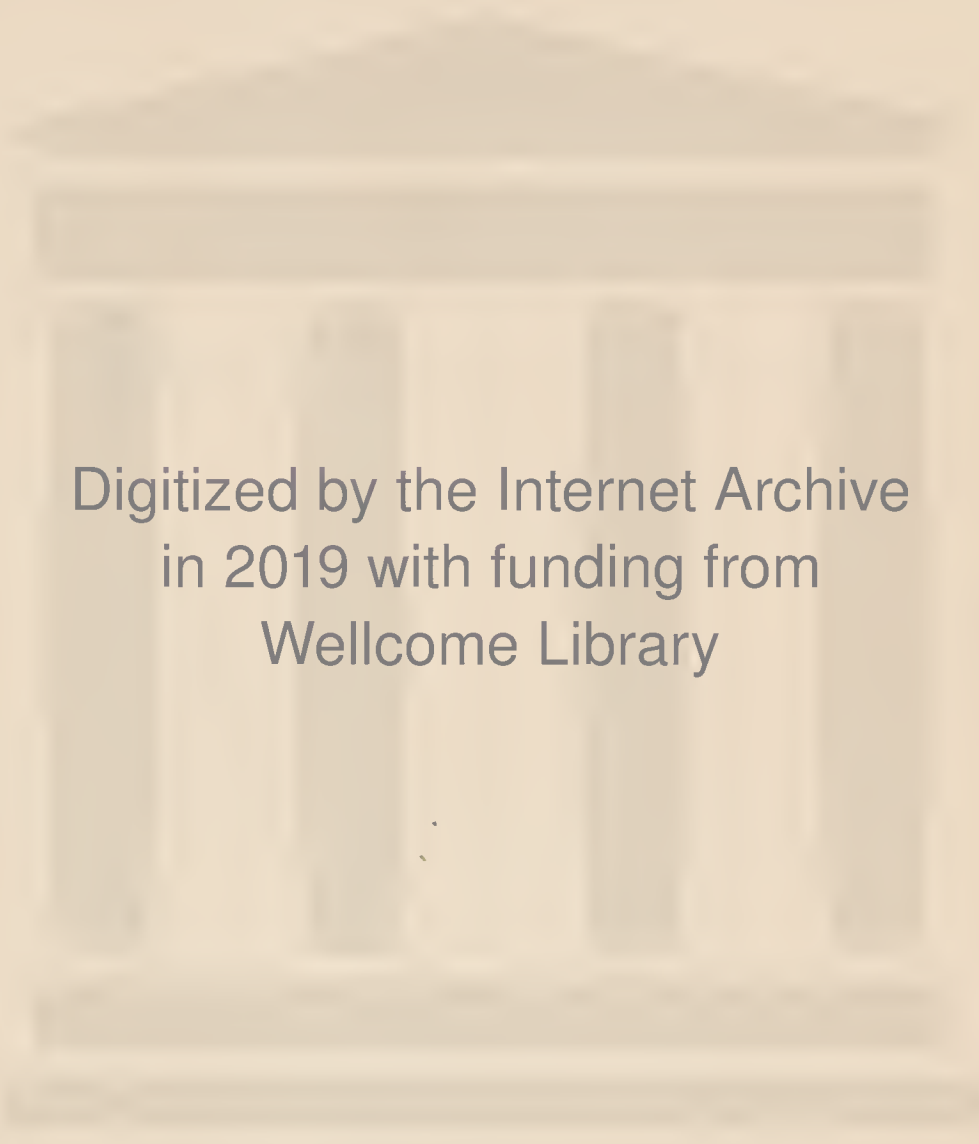


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T H E
A N A L Y S I S
O F
I N O C U L A T I O N :
C O M P R I Z I N G T H E
H I S T O R Y , T H E O R Y , a n d P R A C T I C E o f i t :
W i t h a n o c c a s i o n a l C O N S I D E R A T I O N
O F T H E
M o s t R E M A R K A B L E A P P E A R A N C E S
I N T H E
S M A L L P O C K S .

The SECOND EDITION corrected :

And greatly enlarged, with many material Additions, Cases and Reflections ; the Method of exciting the Disease in *Paris* by small Blisters ; a short Glossary explaining such Terms of Art, &c. as are scarcely avoidable on this Subject, with a new Preface, an Appendix, and a more compleat Index.

By J. KIRKPATRICK, M.D.

————— *quibus hunc lenire dolorem*
Possis, et magnam morbi deponere partem. HOR.

L O N D O N :

Printed for J. BUCKLAND, in *Pater-Noster-Row*; and
R. GRIFFITHS, opposite *Somerſet-Houſe* in the Strand.

MDCCLXI.

43239





T O T H E
K I N G.

S I R!



O U R Majesty's most con-
descendingly gracious Con-
tinuance of the Royal Pa-
tronage to this greatly en-
larged Edition of *The Analysis of Inocu-*
lation, which Your Royal Grandfather

D E D I C A T I O N.

of glorious Memory vouchsafed to the former, must justly be ascribed to that unbounded Affection, with which Your innate Goodness regards the Health of all Your Subjects, and of Your whole Species.

The many vital and personal Benefits that have accrued to Multitudes, under Your Majesty's immediate and most extensive Protection, and to many Foreigners prudently imitating them, from this very salutary and long approved Practice, have been derived, under G O D, from the great Wisdom and Philanthropy of Your august House.

Your Majesty's Royal Ancestor, GEORGE I. gave the earliest Sanction to this Method, by his well-known Discernment, his Clemency and Resolution ; first in commanding some proper
per

D E D I C A T I O N.

per and merciful Experiments of it, and next in consenting to, and authorizing, the most interesting Proofs of its Success, in his highly illustrious and important Family, as further Securities of our religious and civil Rights; while they also presented so many Instances of Preservation, from the deforming and fatal Depredations of the Small Pocks, to his innumerable political Children.

Your Majesty's immediately succeeding Royal Ancestors, together with Your most benign and greatly regretted Father, who submitted Himself to this Practice more than thirty Years past at *Hanover*; and the most truly excellent Princess, the happiest, as best, of Royal Mothers, who has blest Your People with so many very amiable collateral Pledges of their Security and Freedom, had all wisely allowed the most convincing

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vincing and important Proofs of their entire Approbation to this Practice, by employing it very happily on some of Your Majesty's highly illustrious, Your nearest and dearest Relatives.

These Events, so truly auspicious to the Publick, concurring with the very general Success of the Method, had a natural Tendency to induce Your Majesty, when Prince of *Wales*, to complete, and as it were to crown, the Favour which Your Royal Ancestors had afforded it, by Your first condescending to be called the PATRON of Inoculation. How benign, how just an Appellation for the most beneficent political Father of a great and happy People! since the Royal Patronage of a Method so preservative of Life, may well be considered as a mediate Cause of the subsequent Progeny of those so preserved : while these

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these again multiplying under the Triumphs and Felicities of the Royal Patron's Reign, must increase the Number of His happy Subjects, to the reciprocal Increase of His own Happiness; and to the augmented Strength and Splendour of an Empire so highly favoured by Heaven in its Councils, in Genius, Arts and Arms; so peculiarly favoured in the good, the great, the most benign and exemplary Monarchs of Your Majesty's illustrious Royal House.

A due Reflection on that benevolent and even celestial Disposition, which first suggested the Patronage of this wonderful, and probably Heaven-descended Practice, may have induced an humble, but zealous, Cultivator of it to imagine, he had no very slight Pretext for aspiring to the great Honour of
offer-

D E D I C A T I O N.

offering his maturest Endeavours concerning it, at Your Majesty's Feet. Where else indeed, could they have been offered with equal Justice, with equal Propriety and Decorum? since their Author is conscious of a thorough Rectitude, of Intention at least, in attempting to reform a few dangerous Errors in the crude and undistinguished Application of this Practice; which seem to him to have rendered it less unexceptionably safe and beneficial to Your Majesty's Subjects, than he supposes it may be rendered.

In this Reign of Virtue and Incorruption then, this Æra of the strongest reciprocal Affection between the Sovereign and his Subjects (whose Interests are now so practically understood to be inseparable) an ingenuous Attempt for the corporal Health and Increase of
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D E D I C A T I O N.

the People, cannot fail, if successful, of being acceptable to their KING, whose Royal Approbation may so greatly promote its good Consequences. The sole Impropriety of the Offering must consist in its Imperfection, with Regard to the intrinsic and essential Dignity of the Monarch, to whom it is most humbly dedicated. Yet as Heaven itself may probably be delighted with the Integrity of our best Intentions, though imperfectly reduced into Action : and as not a few very candid and reputable Friends to Inoculation abroad, have allowed the first Edition of this Work some warm and unsolicited Testimonies of their Approbation, such Considerations may probably concur with Your Majesty's abounding Goodness, to make this somewhat improved, and largely augmented one, appear the less unworthy of Your Royal Patronage.

B

Ever

D E D I C A T I O N.

Ever conscious of the firmest Attachment to Your Majesty's Royal and Heroic House; of the most impressing Sentiments of Your many Royal Virtues; an humble Individual (a Drop in the amazing Ocean of Your mighty People!) feels himself prevented from attempting an adequate Expression of them, by the unbounded Acclamations of Your Subjects, on the exemplary Commencement and Conduct, on the early Triumphs, of Your Reign; and on the late joyful and universally satisfactory Event, of Your Majesty's selecting and giving them so illustrious and essentially amiable, so elegant and accomplished a QUEEN! "When the
"Throne is thus established in Righte-
"ousness; when Truth and Mercy have
"embraced each other," the Prosperity of the People must be erected on the most durable Foundation. While divine
Pro-

D E D I C A T I O N.

Providence may continue the great, the most benign and most worthy Possessors of the *British* Diadem, in compleat Health, and in the exquisite Enjoyment of every temporal Blessing, to defend and to adorn it, long, O! long beyond the usual Date of human Strength and Duration! may the People resume the Maxim of copying after their Sovereigns, and thence attain continual Happiness, through the active Exercise of pure and practical Religion, of every Virtue and moral Excellence!

But not to injure the Publick, by a longer Trespas on Your Majesty's Indulgence, a silent Veneration of the many Royal Virtues incessantly exerted for the Protection of these unanimously loyal, these free and opulent Nations, will best become a Man affected with the deepest Sense of Your Majesty's

DEDICATION.

Majesty's transcendent Goodness and Condescension on this Occasion; who earnestly begs Permission, however, to profess that sublime Respect, that profound Deference, with which he has the great Honour and Happiness of being,

May it please Your Majesty,

Your Majesty's

Most humbly dutiful,


Most faithfully devoted

Subject and Servant,

J. KIRKPATRICK.



P R E F A C E.

 N excellent medical Axiom affirms, there is no curing an unknown Disease; which is certain, if we suppose human Skill and Application, as chiefly effecting the Cure. For notwithstanding the Sick have sometimes, and not very seldom perhaps, recovered from such Diseases, as their Physicians might mistake either the real Cause or Disposition of; such Cures are doubtless accomplished by the Mediation of the animal Oeconomy and vital Motions, which are exquisitely constituted to remove, or resist, the offending Matter, or Obstruction to Health: and which must, in such mistaken Instances, be also capable of subduing the Evils attending our erroneous Endeavours to restore it. But if our Knowledge of an accidental Disease be necessary to the most direct and efficacious Removal of it, how careful should we be to attain the justest Notions, and to arrive at the most successful Treatment, of one that we venture to excite! I acknowledge for my own Part, that notwithstanding my entire Conviction of the unparalleled Advantages of Inoculation, and of the religious
and

and moral Lawfulness of it, I have never undertaken the Practice, without a more than ordinary Concern about the Subjects of it: and though I have infused, and attended the Infusion of, the Small Pocks with visible Hope and Chearfulness, they have ever been blended, or chastised as it were, with an interior Awe and Solitude.

It has been said in Favour of good Physicians, that * Men resemble Heaven in nothing so nearly, as in giving Health to others: And yet, as paradoxical as it may seem, it is certain, that although the Inoculator is about to communicate a Distemper to a Person in good Health, which appears to be inverting the Function of a Physician, he approaches nearer to the divine Power of healing (if preventing or obviating may be called so) a fatal or dangerous, a loathsome or deforming Degree of the Small Pocks, by a very judicious Inoculation of its Subject, than the collected medical Knowledge of Mankind can as generally effect, with Regard to the Event or Consequences of any other Disease, equally popular, acute and mortal. For this Reason I have contemplated and exercised this particular Branch of Practice, with the more complete Satisfaction to myself; as I had a greater moral Certainty of rendering by it a most important Service to others. I considered the judicious Practice as applied in that auspicious Time, when the Son of *Syrach* says, “ There † is good Success in the Physicians’ Hands;” and thence I concluded them most comfortably enjoying the Advantage of their successful Endeavours.

On

* *Homines nulla in re propius ad Deos accedere, quam salutem hominibus dando.*

† *Ecclesiasticus, C. xxxviii.*

On the other Hand it cannot, and in a Case so important to Mankind, it should not, be dissimbled, that we have had several Miscarriages (though very few in Comparison with those from accidental Contagion) by this Method. These, some have weakly, or lucratively, attempted to evade, or disguise; while others have still more culpably endeavoured to aggravate and multiply them by * downright Falshoods. But as our earlier Miscarriages by Inoculation were, upon the whole, in a greater Proportion than the later, it is no unreasonable Inference, that a stricter Attention to the Subject, and a further Experience of it, may hereafter reduce them to the most inconsiderable Proportion; if, under the best human Conduct, and during the most gentle Disposition of the natural Disease, they should not entirely prevent any: tho' the learned and ingenious Mr. DE LA CONDAMINE supposes an unexceptionable Success the probable Consequence.

In Reality, it seems upon the whole, as if some Misapprehension concerning the Cause of the Small Pocks; concerning the essential Diversity of different Constitutions and Temperaments with Regard to it; or an Ignorance of the most rational Practice in the Disease, were the Causes of some of our Miscarriages by Inoculation. Doubtless an Error in any of these Respects might occasion something improper; or either too much or too little of what might not, in itself, be improper, to be done or given previously to, or after, the Infusion; on the Invasion, or in the Progress, of the Disease. Neither should we omit, that the very great Success of Inoculation

* On this Occasion we may justly refer to many of the Instances mentioned by Dr. Cantwell, in his *Dissertation sur Inoculation*.

culation has probably conduced to some of its Mis-carriages ; by encouraging the rash and ignorant often to enterprize it, and the inconsiderate too frequently to permit them.

From such Reflexions I concluded a useful *Analysis of Inoculation* should comprize a further Analysis of the Causes and Disposition of the Small Pocks, in order to the safest Practice of the Method that imparts it. Such Disquisitions then (chiefly contained in the three first Sections) being conversant about some of the most active, tho' imperceptible, Parts of Matter ; and about their Operation upon others throughout our fluid, our vascular and nervous System (so untraceable in a living State) were of Course referred to the Candour and Consideration of the Author's Superiors and Equals in * medical Knowledge and Literature, to whom they must be obviously intelligible ; since it is certain they have been so to Gentlemen not Physicians, of good natural Discernment and general Erudition. But for such Practitioners, or other Retainers to Medicine, as may be less disposed to, or less qualified for, physiological Disquisitions, it is hoped, the Facts and Evidence with Regard to Inoculation ; the Description of the Operation itself ; the most apposite Preparation of different Bodies for it ; the Treatment of the ensuing Disease ; and briefly every Circumstance and Precaution relating to the Practice

* This appears from p. 32, 75, and many other Passages of the Treatise ; and was obvious to the learned Mr. CHAIS at the Hague, who in his Letter to Dr. SWENCKE, professedly on the *Analysis*, says, — *Au milieu de Quantité d' Observations faites pour les maîtres de l' Art, et que Personne ne fera mieux en Etat d' apprecier que Vous — Essai Apologetique*, p. 202, 203, i. e. Among many Observations intended for the Masters of this Art, and which no Person is better qualified than yourself to judge properly of.

tiſe are ſo clear and preceptive, that “ he who runs may read.”

Nevertheless, it having been objected to the former Edition of this Treatiſe, that the Terms of Art, and ſeveral leſs common Words frequently occurring in it, made it hard to be underſtood by a great Number of Readers, who might be intereſted in the Subject; as many of the Terms of Art and merely medical Words, as could be omitted without much Circumlocution (which in the plaineſt, humbleſt Language might ſometimes prove full as obſcure as the Terms themſelves) are here exchanged for more familiar ones: while ſuch as could not be avoided on this Subject are briefly explained in a ſhort Gloſſary. On Occaſion of the like Objection to Dr. ARBUTHNOT’S *Eſſay of Aliments*, &c. that learned and ingenious Phyſician, in a following Edition of it; printed the plaineſt *Engliſh* Words he could find to correſpond moſt exactly to ſuch Terms, at the Bottom of thoſe Pages in which they occurred. By this Means indeed the Reader ſaw the Explanation and Connexion of the Term at the ſame Time with leſs Trouble; tho’ in a few Inſtances it occaſioned the ſame Explanation to be repeated in another Page: beſides which, that Method would have interfered too often, in this Book, with the other References and Notes.

Some other Words, which are not Terms of Art, and which muſt be well known to all who are well acquainted with their own Language (no very general Caſe indeed) I have alſo exchanged for others more common and popular: and ſuch ſometimes I confeſs, as have expreſſed my own Ideas leſs precisely and ſatiſfactorily to myſelf. Hence I imagine they may often appear leſs eligible to thoſe Readers, who thoroughly penetrate every Work they think worth peruſing

perusing; who can envisage the Notions of a Writer exactly in the Light and Attitude in which he conceived and intended them; and who must find themselves best entertained by the most significant and precise Expression of them. Persons of this just, tho' delicate Taste, will very generally consider Literature and its Embellishments, as decent and proper, tho' perhaps not as constantly indispensable, Attendants on Science; and can never prefer utter *Vulgarism* in Writing to such Elegance, as may be equally perspicuous to every Reader of a moderate Education and Apprehension; on which Supposition it must prove more impressivè and retainable. At the same Time, however, such Gentlemen will probably be the readiest to approve a Book's descending, on a generally interesting Subject, to a more obvious Familiarity with humbler Comprehensions; and will not consider, as Dr. ARBUTHNOT said on much the same Occasion, "an Indulgence to others as an Indignity to themselves." For in this Respect perhaps I have rather done too much than too little; though I did not intend a very exact and critical Explication of any Terms or Words, nor to consider them in all their Extent and Variety of Signification; but have endeavoured to give the most plain and familiar Explanation of them, in that Sense in which I have commonly used them.

But having added such an Explanation, and made such Alterations (whatever Amendments they may be thought) in Deference to such Objections, I may be allowed perhaps to observe, that I could have no ungenerous Motives for having exposed my Performance to them. It was address'd, as I have said, and especially all its theoretic Part, to the Faculty; to no adequate Member of which it could be unintelligible, or even difficult. That relative Obscurity

rity which it might have, in Respect to the Education and Capacity of several Readers, clearly proves it was not calculated to * inveigle away any Physician's Patients, his Chattles, as *MOLIERE* calls them; nor spread forth and projected to inclose Sholes, of whatever Age and Dimensions, for my own inoculating. With perfect Conviction of the great Utility, the religious and moral Lawfulness of this Practice, I have never posted about urging or enforcing the Application of it upon any Individual. I have left its own Events to speak for it; and having publicly testified my Opinion on the Matter, I have constantly submitted it to Persons of common Discretion to chuse, or reject it, for themselves or their Families. For having only the greatest moral or physical Probability, but no *infallible Assurance*, of its good Consequence in the most favourable Subject, I should have experienced more Unhappiness from the Miscarriage of one Patient whom I had *solicited* into Inoculation, than the Advantages from recovering some Hundreds could have counterbalanced, in my Way of estimating Things; which perhaps may be singular sometimes, but I really think in this Respect is not affected.

This relative Obscurity will also intimate I could be content, as *Horace* says, with a few Readers; and having directed the Work principally to such as were the most capable Judges of it, I was not over-anxious in considering, whether they were likely to be such thoroughly disinterested ones, as to make the most just and impartial Report of it. This Report,

* This was evident from p. 185, 186, 238, 239, 245, 266 of the first Edition, to which correspond p. 237, 303, 304, 313, 344 of this; and it is very clearly inferable from many other Passages in both. See also p. 219, 220, 286, 323, 332 of the present.

port, among ourselves, has probably been as various as their various Taste, their different Abilities and Candour. The Terms of Art (nor is there Science, Art, or even Trade without them) and other derived Words, from whatever Language, besides a few Latinisms perhaps, could be no real Objections with them. These compose the Dialect, as it were, of the Science; the Writer conceived it suitable to the Subject; respectable to the Dignity and Elegance of the Profession, and of such Readers. To such also the Author might naturally be desirous of appearing decently qualified for the honest Exercise of an Employment highly liberal and benign in itself; whatever Reason there might formerly have been given for the severe Censures of the Physicians in antient *Rome*, which Dr. *Cockburn* ascribes to the good * Emperor *Aurelius Antoninus*; and for the ingenuous SYDENHAM's much later † Complaint of the illiberal and even malignant Conduct of Persons of the Profession. This disingenuous Spirit however I imagine, upon the whole, is now very considerably abated, through the real Virtue and Honour of many ingenious, candid and learned Physicians both here and abroad: notwithstanding there are, and perhaps will always be, here and every where, some detestable Remains of it, from the

* After a pretty general, tho' somewhat cursory, Perusal of *Gataker's* Edition, I have not discovered the Passage in which Dr. *Cockburn* makes this great and good Prince censure the Physicians at *Rome*, "as lying, back-biting, covetous Persons." And as this is not much in the Spirit and Character of *Antoninus*, he should have referred to the Book and Section.

†—eiusdem artis professores calumniandi ansam inde cupidè adripiant, atque coram iniquis iudicibus causam dicentes, severissimam sententiam facile eliciant; eo scilicet consilio ut ipsi pluris aestimentur, et super aliorum ruinis viam sibi sternant ad famam; id quod viris literatis indignum prorsus est, immo et vilioribus Artificibus, modò probitatem colant. P. 147.

the too general Depravity of our Nature : one Instance of which I have imagined myself too much affected by, to avoid recollecting it.

In the Year 1746 I published an Answer (by Way of Letter) partly serious, partly ludicrous, to a Pamphlet levelled against Inoculation by a late Fellow of the College, and intitled, *Several Cases in Physick, &c.* to which Answer there was no Reply. I heard soon after, this Performance had affected that Gentleman's Practice, which I did not imagine would have been the Case, as he had been long established. I did not intend it, having never received the least Offence from him, and not having the least felonious Design upon it myself. I judged nevertheless it might be of public Use to expose his weak Reflections against Inoculation ; and I thought it but ingenuous and honourable, by the way, to remove a little Dirt, with which he had endeavoured to bespatter the late very worthy and celebrated Dr. MEAD, and the learned Dr. JURIN, who has deserved so well of his Species on this important Practice. This Answer had very speedily a second Edition, and might have gone further, if I had been one of the most active industrious Authors. It was natural to expect the Gentlemen I had (tho' only officiously) defended, and who were too well engaged otherwise to have done it themselves, would politely acknowledge my good Intention. They did, and honoured me with their Friendship, especially Dr. MEAD. But the Approbation of that Pamphlet, since I am drove to this Retrospection of it, did not rest here. Several Gentlemen of different Arrangements in Medicine complimented me with their personal Civilities, and some even with Favours. Now it is certain that many of the very same Terms of Art, and many other Words both from the *Greek* and *Latin*, which have

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been

been condemned in the *Analysis*, had also been used in that Pamphlet, besides a ludicrous Letter entirely *Latin*, annexed to its second Edition. Yet there was not the least Objection to any of these ; nor even to many irregular burlesque Words which I had coined and uttered in it ; the Reasons of which seem very obvious. That Physician, to whom my Letter was humourously addressed, from his long standing and many Connexions, might have his Proportion of Business. This Pamphlet, being thought to have exposed him considerably, had a manifest Tendency to lessen it. His Loss must have proved Gain to some other Practitioner or Practitioners ; to say but little of the Gratification that Gentleman's Enemies, which he was not without, might receive from his being discredited. Besides, the real Author of this Answer did not appear, as I had only prefixed that Physician's Name transposed, to this Answer to the *Several Cases*, &c. : So that no new Competitor presented for any Share of the Advantages, which others might divide, by this Contest. But, on the other Hand, the *Analysis* might naturally be thought intended to introduce a Candidate for the publick Favour in one Disease, or in one Method of it, at least ; and a Method which both Surgery and Pharmacy in *London* were endeavouring to monopolize, exclusive of Physick and of each other, though it has not fully succeeded. It seemed then a Point as interesting here, to keep a new Pretender out, as it had been to pull an old Possessor down. The common Readers of the Book, supposing them neither very discerning nor scholastic, might certainly meet with more in it than they understood ; and hence were obliged to receive the Character of it from Physicians, Surgeons, or Apothecaries of their Acquaintance : and what this Character was like to be is very obvious ; except such

Acquain-

Acquaintance proved to be Gentlemen of some Erudition, and uncommon Candour.

This appears to myself no unfair State of the Reasons for the different Reception of that Pamphlet, and of this Work, in our medical Republick, in which I include the Professions of Surgery and Pharmacy. However it is clear I have submitted to some Blame in Respect of this Work, by the Addition and the Alterations I have made in this Edition of it. This Blame nevertheless I may very naturally have incurred, in part, from my mistaking (not under-rating) the Education and Capacity of some Readers, and the Ingenuoufness of others. It affords me at the same time considerable Satisfaction to reflect, that notwithstanding my own Faults in Language and Expression, and the *Finesse* of some Individuals, the Publick have been so indulgent to my Endeavours on this Subject, as to require the present Republication.

Thus much may suffice for such of my benevolent Readers, as might encounter many Difficulties in that Edition of my Book, which I hope they will find considerably lessened in this. To have sunk my Expression much lower than I now think it, would have been making them but an indifferent Compliment, and loading myself with many Difficulties; when declining Age has wholly obliterated all Remembrance of the Dialect of my Grandames and Nurses: to say very little of such Incapacities, as the plainest and humblest Writer cannot sufficiently descend into. But with Regard to those Readers who thoroughly understood that Treatise; or, from the Pretensions they formed to Physick, &c. ought to have understood it, and yet encouraged and increased the Complaints of its being harsh and unintelligible, I shall continue this *Eclaircissement* a little further, by

observing, that with Regard to Language in general, I do not recollect, that in any serious Manner of Writing (all Burlesque Words being wholly out of the Question) I have considered myself of sufficient Authority for the frequent coining of new Words, or for innovating the Signification of established ones : inſomuch that I doubt if I had uſed throughout the *Analysis* any Terms or Words, that may not be found in the beſt, the lateſt, Engliſh Dictionary. I have heard however of ſome Wags who threatened to tranſlate it into *Engliſh* : and I have met with a few Gentlemen, not without Merit, and neither ignorant of Words nor Things, whoſe delicate Ears have been mighty eaſily diſguſted at the ſlighteſt Offence againſt what they may ſuppoſe, the *pure Simplicity* of our Language. One of this Caſt ſneered me with his complimentary Wiſhes of *accumulated Honour*, in Deriſion of the Words *accumulated Gratitude*, which I had uſed in the former Dedication : neither could he diſgeſt the Word *Elucidation*, which had unfortunately eſcaped in ſome Propoſals to the Publick. Now if the *Latin* Derivation of this gave him Chagrin, would *Illustration* or *Explanation* have hurt him leſs ? It happens that the following Words and Phraſes, *common Senſe* — *plain Diſcourſe* — *familiar Expreſſion* — *humble Style* — *real Honour* — *deteftable Deceit* — *constant Labour* — *moderate Exerciſe*, and a few thouſand more *equally current* and *obvious*, are from the ſame Source too ; and how ſhall we get rid of them ? O ! but *long Uſe*, they may reply, and *innumerable Precedents* have *naturalized* and *established* thoſe, and theſe too, in which we are *obliged*, or even *compelled* to mention them. This neceſſarily reduces us to the ſame *Criterion* or Standard of the Validity of Words, *viz.* Time and Date, by which many of the *Romans* in *Horace's* Days eſtimated the Value of Writers

Writers themselves, the Dealers in Words. Suppose this Term then, with him, to consist of a hundred Years ; shall a Month less, as he says, or even a Year less, discredit them ? No, they reply, a Writer of that Date may pass very well. Thus by obtaining other gradual Concessions, 'till he plucks the Horses Tail bare, he dextrously exposes the Absurdity of those who estimate Writers, which we apply here to Words, merely by their Date and Antiquity ;

————— *qui virtutem aestimat annis,
Miraturque nihil nisi quod Libitina sacravit.*

This capricious Criticism will appear still further absurd, if we reflect, that all those derived Words, which are become so authentic now, had also their Birth, their Novelty here, in some former Period ; when, as the same Characters have probably existed for a few thousand Years, some among our Ancestors had the like Qualms about such of them, as now appear the simplest, and the most indispensable to us. Indeed as there seem some * fugitive and *obsolescent* Parts, as it were (if I may be allowed that Word) in the Nature of a living Language, and especially in that of a literary and commercial Nation, it would be truly inconvenient if we had not an equal Quantity of successive and supplemental Expression ; though doubtless all that many Men think and know may be comprized within a few Words ; if that could be a sufficient Reason for confining the rest to the very same, and to the same Number too. Moderate Reflection in short will make it evident, that the Increase of Knowledge must be accompanied with that of Language, its Vehicle : nor could all the Severity
of

* — Cadentque Quae nunc sunt in honore vocabula. HOR.
'Αἱ παλαι Σωτηρὲς λέξεις γλωσσῆματ' αὐτῶν. M. AUR. ANTON.

of the antient *Romans* against the Introduction of new Words have prevented their coining or importing many, if it had continued a living Language until our later philosophical Acquisitions, and Improvements in various Arts; supposing their Descendants also to attain the Knowledge of them.

It may be hinted here by the Way, that such learned Readers, as are habitually apt to impute Obscurity to a Book, should be pretty certain, previous to their Imputation, that they thoroughly comprehend the Sense; or, if that should be scarce, the mere Aim, and keep Pace with the Conception, of its Author; without which Equality the plainest Language imaginable will appear obscure to them: for until his Ideas, or Meanings, are discovered, it will be impossible to judge of the Fitness or Impropriety of his Expressions. And it may be fairly apprehended, that some Readers are much readier to suppose a gross Obscurity in any Writer, than to admit the least Shallowness of Discernment in themselves. That *absolute* Obscurity, which a Reader of Penetration and Candour may consistently censure, must arise from an Author's writing without clear, explicate Ideas; in Consequence of which his Expression will be cloudy and confused, be his Words ever so plain and simple, his Style ever so humble and inelegant. As the Axiom says, "No Man can give what he has not," and if an Author writes, he knows not what, it may well appear to his Readers, they know not how. But where this crude Manner of thinking is not an Author's Case, such Readers ought to surmise, that the seeming Obscurity might possibly depend upon an indifferent Apprehension at home. This indeed it may not be in their Power entirely to remedy; though they may be able to moderate, if not wholly to extinguish, that Envy or
 Ill-will,

Ill-will, which often creates an imaginary Obscurity; provided they will only deal by others, as they would gladly be dealt by. Upon the whole however of this Simplicity of Writing, which may have its frequent Place, its Use and Beauty too, it would be still more estimable, more amiable, if we could realize this Simplicity into Action, by conquering all Duplicity both of Heart and Speech; and by avoiding all Artifice in our Conduct and Commerce with Mankind, which seems reconcileable with as much of Industry as is truly laudable, and indeed virtuous.

Had all the Censures of this Work however been confined to the Dress and Style of it; or had they only proceeded from such as had never proposed any Friendship for, nor entered into any Intimacy with, the Author; one who was not excessively vain nor vindictive, might have contented himself to have reformed the Errors complained of, with less Remonstrance about them. Writers, of all Men perhaps, may be particularly apt to over-rate themselves; and where one of them professes to instruct too, he is almost unavoidably supposed to assume a certain Importance of Character, that is apt to disgust his Readers of the same Profession, and of similar Pretensions on his Subject; whose Resentments, tho' springing from the same Passion, may yet have a Tendency to repress the vicious Swelling and Self-worship of an Author. Partly with such a View I have endeavoured to apply their Assistance to myself, as not wholly insensible of my Proportion of this great and common Infirmary: having also publickly, tho' in vain,* invited their strictest Scrutiny
into

* For my own Particular, I wish not to preclude any physical Writers' farther Sentiments on this Subject against mine, or my
Writings

into the Substance, the Matter as well as the Manner, of the *Analysis*; that it might either be reformed in Consequence of their Strictures and my own Conviction, or be established by my Answer to them.

But particular Detraction may be so circumstanced, as to make a deeper Impression. A Gentleman, with whom nine Sections out of eleven of the former Book were left in Writing, before they were committed to the Press, had expressly assured the Author, "he thought it was impossible to amend them;" adding, "he would not have them altered for any Person." Yet when the Book was published, and he was presented with several of them bound, he advised another Gentleman of great Worth and Erudition, who had taken up one of them in his Study, and who could have met with nothing difficult in it, "to lay it aside, for he would not like it." This, strange as it may appear, is a certain Fact, having left the MS. with him, and given him the Books myself; and having been informed of this Character he gave of the Book to that Gentleman, by a Person of a very fair and good Character, who was present at the Time, and on the Spot, when and where these Words were spoke. Such a Fact requires not the least Reflection, nor Comment.

Writings concerning it: but sincerely invite the most capable Detractor from the *Analysis of Inoculation* (tho' I have heard no very eminent or learned Physician suggested as such) to analyse both the Matter and Manner of it, with the justest Severity, his Self-regard will allow him to prefix his Name to: since he may assure himself, if his Objections and Reflections are important, or even specious, and God continues my Health and Faculties, he shall be repayed with an Acknowledgement of my Errors, or a Refutation of his own; in either of which Events many others may be still more importantly interested than ourselves. — Answer to the Rev. Mr. DELAFAYE, Evening Advertiser December 12, 1754.

Comment. Some few Years however having intervened since the ungenerous Occurrence, I can truly say I have forgiven it, tho' I could not easily dispense with mentioning it; as it has even obliged me with the most justifiable Reasons for annexing the Judgment of some learned and generous Foreigners, concerning this Work, on its first Appearance.

COUNT TESSIN, lately Preceptor to the Prince Royal of *Sweden*, whose Name and Function sufficiently characterize him, in his Letter on Inoculation to the Prince says,* — “ There is indeed less Reason for me to extend this Matter, as there are several excellent Treatises published upon the Subject; particularly, the *Analysis of Inoculation* by Dr. J. Kirkpatrick.” What the truly sagacious and experienced Dr. SENAC most obligingly says of the Work, chiefly regards the good Intention, the considerable Labour, of it: and the learned Reader is left to make what Deduction he thinks proper from the Compliment here † referred to, on Account of the great Politeness both of the Person, and of the Place. Dr. WERLHOF, Physician to his late Majesty, and, if living, probably to his present Majesty as Elector, in his Letter of *May 18, 1754*, from *Hanover*, says, ‡ “ You have in so candid, solid, and learned a Manner, and from the plentiful Fountain of genuine

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* *Letters from an old Man to a young Prince*, Vol. III. p. 137, 138.

† ——— Ad tuum librum confugi. Eximius profecto est labor hic, nec unquam e posterorum memoria elabi possunt tot insignes conatus, ad pestem, quæ humano generi insita est, amolendam: non incerta videntur tua præcepta, certiora tamen erunt cum ea addideris quæ longior docuit, aut docebit, usus. *Epist. MS.*

‡ Candidè, solidè, eruditè, et ex genuinæ experientiæ uberrimis fontibus, doctrinam de variolarum insitione ita nobis propinasti, ut vix ac ne vix quidem addi aliquid posse aut debere videatur: ita penitus riteque omnia exposuisti, demonstraisti, limitaisti.

Experience, so fully discussed the Doctrine of Inoculation, that it seems as if very little was omitted in, or ought to be added to, it; so thoroughly and rightly have you displayed, demonstrated and limited the Practice.” The Rev. Mr. CHAIS of the *Hague*, at the End of his excellent Apology for the Practice of Inoculation, in a religious and moral View, has addressed a Letter to the learned Dr. SWENCKE, an eminent Physician there, professedly on the *Analysis*, &c. and on my worthy Friend Dr. MATY’s Account of it in his *Journal Britannique*: in which Letter, among many very favourable Demonstrations of his great Candour to that Treatise, he says, * “Without Doubt it cannot fail of being translated into all the Languages of *Europe* ;” adding in another Place † “that when the Author is talking of the Improbability of transfusing any accidental Diseases of the Person inoculated from, to the Person inoculated, he speaks, as if he had in some Degree surprized Nature herself in some of her secret Operations.” The ingenious Compiler and Abridger of several Pieces on Inoculation says, of the *Analysis*. ‡ “That of all the Works on this Subject, this is the most extensive, compleat and modern; and that it contains so much Matter, and so many curious and useful Observations, that his Readers must not be surprized, if the Extracts should be

* Sans doute qu’ un Livre dont le Sujet est si important — ne manquera pas d’ être traduit dans toutes les Langues de l’ Europe. *Essai Apologetique*, p. 103.

† Quant aux Maladies accidentelles, nôtre Auteur en parle un peu comme s’il avoit pris la Nature sur le Fait. Id p. 117.

‡ De tous ces Ouvrages, le plus étendu, le plus complet, et le plus recent est celui dont on va donner un précis. Il contient tant de matière, tant d’ observations curieuses et utiles, qu’ on ne doit pas s’etonner, si nôtre Extrait est de quelque Prolixité. — *Recueil de Pièces concernant l’ Inoculation a Paris*, 1756, p. 237.

be prolix." When this Gentleman comes to abstract the Section on Preparation, he says, † "To give all the good Directions it contains, would oblige him to translate the whole Section." Except the *Swedish* of COUNT TESSIN, translated by an ingenious Gentleman of Character here, I have referred to the express Words in the different Languages, in which these Testimonies were written, and given them here in *English*, that none might complain of their not being genuine, or *intelligible*. Besides the generous Partiality of this Gentleman and Mr. CHAIS to that Treatise, I might refer to the learned and truly rational Mr. LA CONDAMINE's frequent Citations, to Dr. BUTINI's Letter to Dr. MATY, and to myself, on Occasion of it; to this last ingenious and friendly Gentleman's former Account of it as a Journalist; to Dr. SHUTZ's frequent Citations from it, and to a few *English* Pamphlets, besides some Letters to myself. But I am so thoroughly apprized of the great Decency of some Temperance on this Occasion; that I must hold myself obliged to all who have furnished me, from whatever Intention, with the best Apology imaginable for my having produced this Abstract of the Approbation of such learned and worthy Writers, as have done me great Honour, and afforded me a very natural Satisfaction; especially as I have not observed throughout the whole of these Commendations, or Compliments, at large, the remotest Hint of any Obscurity in the Work.

One Reason of this I conceive to be, that excepting a few foreign Gentlemen in Commerce with us,

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who

† Il faudroit traduire cette Section entiere pour faire entendre les Avis utiles qu'elle contient. *Ibid.* p. 265. A learned Friend here informs me the Author of this *Recueil*, is Mr. MONTUCLA, Member of the Royal Academy of *Berlin*, and Author of a late excellent History of the Mathematics.

who attain our Language on that Account, they are generally Foreigners of Condition and Literature, who do us the Honour of cultivating it as a Kind of learned Language, and as the Means of reading the best Books of Science, of Erudition and Entertainment, which are wrote in it. This I should imagine to be a considerable Motive for our endeavouring, not only to excell in the intrinsic Merit of our Productions in the two first Respects; and for our preserving the justest Regard to Virtue and Delicacy in the last; but that it should also excite us to such an Elegance, Force and Significance of Expression, as may be best adapted to the Subject and Purpose of each Piece. Hence as many of our different Books as may be translated into French or other Languages, will make the better Appearance in them, to the Honour of the English Genius: and Language, we may be certain, is not considered as of little Importance among our (now hostile) Neighbours; who had long since, under the Auspices of a very politic Minister, formed a Body of ingenious and learned *Frenchmen*, principally for the Cultivation of their own. This has certainly facilitated both their commercial and political Inter-course with other Nations; as they have had the Address to make it the most general Medium of *Europe*, both in Conversation and Correspondence, between such as are Strangers to each other's native Speech; and even the Language of most Courts in *Christendom*.

But this professed Dread of Innovation is not restrained to Style or Language; being also extended to any further Progress or Discovery in Science. We know that HARVEY'S Doctrine of the Circulation was vehemently opposed by *Riolan* and others. Some Pigmies, tho' scarcely audible, have whistled
against

against Sir ISAAC's Philosophy : and we have seen People sneer at the Use of Ventilators, with very little indeed of the most ingenious Dr. HALE's Physiology, and not a Ray, a Spark, of his Philanthropy. A nameless English Writer some Years past recommended, in express Terms, this *Advancing backwards*, as the *Hibernian Exercise* terms it, in medical Education at least; "deploring the Vanity of such, as cannot be satisfied with having wrote a plain practical Treatise, without shewing Knowledge in Philosophy, and Excellency of Genius," *Pharmacopolæ* justificati* P. 13. Now indeed if a Physician may be thoroughly qualified without any Philosophy, of which Physiology makes a large Branch, and without any Genius, there will be very little Difficulty in writing, if he can write legibly [his Printer may spell for him] without making the least Ostentation of what he does not possess. But supposing Physicians to have Physiology and Genius, since many certainly have had, and many now have them; is it really necessary they should bury their Talents, and suppress their Attainments, as medical Reasoners and Writers, (which it may sometimes be their Duty not to (a) suppress) lest they should be judged unqualified to prescribe as Practitioners! A *Latin* Axiom affirms (b) ' that where the Philosopher terminates, the Physician com-

* Perhaps this Author chose this *justificati* in his Title-Page, to manifest his Contempt of pure classical Latin. He might have proved this doubly by premising *re.enerati* to it; which perhaps a few may suppose previously necessary to the Justification of some of the Craft. This however cannot affect truly honest and sensible Men of the Profession, whose Experience may be often greatly beneficial.

(a) Sic enim decet Investigatorem veri non solum quæ legerit, sed et quæ secum ipse meditando considerat et contemplatur, usuque tenet cognitione dignissima, in communem fructum proferre. FERNELIUS Prefat. ad Lib. iv. de Febribus Edit. Lugd. Bat. 1645.

(b) Ubi desinit Philosophus, incipit Medicus.

commences,' which supposes the latter to have been previously a complete Philosopher. But our Pharmacopolist's System, thoroughly inverting this Axiom, insists on the negative Qualification of *no Philosophy*, as indispensable to *his Way* of *mixing* or *making up* a genuine Doctor, with which it may not incorporate perhaps.

This Author further supposes the Knowledge of no Language, except his Mother Tongue, necessary for a Physician: no more Anatomy, than what an Acquaintance with the Bowels, and one small anatomical Treatise, with the occasional Consultation of a few dead Dogs, may afford him. He requires much the same Degree of Knowledge in his Physician, of what Physicians themselves have thought the other necessary Prerequisites to a just Notion of Diseases, and of the happiest Methods of treating them. He has a very bad Opinion of all medical Theory, without reflecting that *Theory* does not really signify any naked wild Supposition; but such a thorough Contemplation or Consideration of its Object, as may, in abstruse and difficult Cases, afford the Intellect the most probable Representation of such Species, such Motions and Operations, as elude the Inspection of the Senses. Hence an apt and even fertile Imagination, under the Direction of an excellent Judgment, appears to constitute the Genius of great Physicians: continual Instances of which happy Combination may be seen throughout HARVEY's excellent, learned, and most ingenious Treatise on the Generation of Animals. MARCUS ANTONINUS, mentioning the same most curious and abstruse Subject, says, " We (a) should contemplate the Cause of this wonderful

(a) ταύτα ἐν ταῖς ἐν τοιαύτῃ ἐγκαλυφθεῖς ψυχρομένοις θεωρεῖν, καὶ τὴν δύναμιν ὅπως ὁρᾶν, ὡς καὶ τὴν βριθεύσαν, καὶ τὴν ἀνωσσομένην, ὁρώμεν, οὐχὶ τοῖς ὀφθαλμοῖς, ἀλλ' ἐκ ἡττοῦ ἐναργῶς. Lib. X. § 26.

derful Process, however obscure, as we do that of the centripetal and centrifugal Force; not indeed with our external Eyes [which cannot discover them] but with such as are not less discerning." Thus inseparably blending the conceiving and judging Faculties, which *Harvey* distinguishes, (b) "affirming the vegetative Faculty, to which he ascribes the Formation of the Embryo in the Womb (and which he elsewhere supposes very (c) similar to the Faculty of ideal Conception in the Brain) to be that, in which we resemble the Deity still more than in the rational one."

That a very good and useful Physician may be formed without this Luxuriance of mental Powers, this Extent of Contemplation, from a plain clear Understanding, cultivated by proper Education, and considerable Experience and Observation, is highly probable. Nevertheless, this occasional Faculty of exploring even remote and abstruse Causes is deemed necessary by the most judicious *Celsus*, to the (d) consummate Perfection of a Physician. Our nameless Author however is of a very different Opinion, and heartily joins that numerous Group of Moderns, who

(b) *Neceſſe eſt fateamur, in generatione hominis, cauſam efficientem ipſo homine ſuperiorem et præſtantiorem dari: vel facultatem vegetativam, ſive eam animæ partem quæ hominem fabricat et conſervat, multo excellentiorem et diviniorem eſſe, magiſque ſimilitudinem Dei referre quam partem ejus rationalem* P. 293. See alſo *Anal.* p. 16 to 19 and Notes **.

(c) *Superest ut ad merum conceptum, ſpecierumque ſine materia receptionem confugiamus; ut idem ſcilicet hîc contingat, quod in cerebro fieri nemo dubitat.* 561

(d) *Eum verò rectè curaturum, quem prima origo cauſæ non ſefellerit* P. 5 — *Itaque iſta quoque naturæ rerum contemplatio, quamvis non faciat medicum, aptiorem tamen medicinæ reddit. Profecto veriſimile eſt et Hippocratem et Eraſiſtratum et quicumque alii, non contenti febres et ulcera agitare, rerum quoque naturam ex aliqua parte ſcrutati ſunt, non ideo quidem medicos fuiſſe, verum ideo quoque majores medicos extitiſſe. Ratione verò opus eſt medicinæ ſi non ſemper inter obſcuras cauſas, neque inter naturales actiones, tamen ſæpe.* p. 13.

who ridicule all Theory ; which this very *Celsus*, a Man of great Capacity and extensive Erudition, a most elegant Writer, and probably the best Surgeon of his Time, judged to be highly estimable : and for these plain Reasons indeed, because he knew what it meant ; he could discern a true from a false one ; and foresaw, in some Degree, the great Lights that must result from such a Habit of thinking and Disquisition. On the contrary our modern Anti-theorists very willingly forget that Theory, or even meer *Hypothesis*, may have frequently suggested Experiment, and Experiment may have sometimes established Theory : without a Propensity to which in Men of real Capacity, we had still been destitute of many Discoveries and Improvements we possess. Had Inoculation, for Instance, been discovered by a Physician, as some may be ‡ inclined to think it, he must have deduced it from a Theory, founded on observing the different Effects of the same Cause, acting upon the Vitals or the less important Parts, and under different Circumstances of the affected Subject. To discern the Errors of a specious Theory is the Part of an excellent Physician, who cannot be supposed a bad Theorist, from his being superior to an erroneous one. Besides that even these very Errors, which indeed have bad Effects on weak Judgements, generally serve in the End to the Establishment of some practical Truth : in which Respect they may be compared to the Rule of *False* in Arithmetic, where from a substituted and wrong Number, there results a certain and satisfactory Solution. — But not to lose Sight of this *justifying* Pharmacopolist, the whole of what he would inculcate is, that the general Education of the Apothecaries would be the best for Physicians too ; and that the Contractedness of the former is the Standard of

‡ See p. 107.

of Perfection for the last. These, to be accomplished and fortunate, should renounce every Attainment those have not, or could not, arrive at; or finally experience “the Increase of Knowledge to be the Increase of Sorrow only.” Such Railers, like the Fox without a Tail, would persuade us that every Talent or Faculty of which they are unpossessed, is prejudicial, or at best worthless in others: but endeavour to suppress the real Truth, which is, that *as many as excell them disgust them too.*

There appears one Obstacle however to the compleat Execution of this extraordinary Project, which is, — that this modest *Criterion* for ascertaining the Value of Doctors by negative Qualities and Quantities, in Proportion to their Inabilities and Non-attainments, must immediately disqualify the most learned and reputable Fellows of the Faculty, the most esteemed and most considerable Practitioners within the Bills. Now several Persons of high Rank, and great Discernment, have certain strong Prepossessions in Favour of such Gentlemen: and possibly both the Universities might protest against the rigorous Execution of it. To this on the other Hand it may be answered, that what the Consumers of Corn, the Multitude, lose in Weight, they may gain in Tale or Number; whence the Majority will be better accommodated by reducing the Price of Health and Sickness, these *sometimes* commutable Circumstances: since by this compendious Method of Institution, every advertizing Doctor, of whatever former Craft or Mystery, patented and unpatented, Horse and Foot, all indeed entitled, occasionally, to the Benefit of their Clergy, must also be qualified for *Graduation*, as plainly as one of Dr. *Franks's Rules* or *Squares*, and nearly in as short a Term. Besides, tho' it has been the Custom of some Schools to attempt shaming the Dunces, by threatening to cut them up into Taylors

or Chimney-Sweepers ; it may prove more expedient for the Publick, on this System, to select Lads of this solid Cast, and to manufacture them into Doctors ; as there can be no Apprehension of their puzzling their Patients with hard Words ; nor mistaking their Cases, through the Influence of any Theory whatsoever. — After all nevertheless, some Allowances must be made to the real Necessities of our common Nature ; and many more will be pleaded for by the factitious Wants and Cravings of Men.

Thus having laughed away the utmost of my frail Resentment, I shall detain my patient Readers little longer than to inform them, they will find this Edition considerably enlarged with some new Cases (the greater Part within my own Knowledge) and with many further Reflections on the Subject, some of which may inform the less experienced ; while others perhaps will only entertain the medically speculative and curious. Had my Experience been still more extensive, the Publick had not been the poorer for it, as far as it might have furnished any thing truly new and valuable ; except the Fatigue of collecting it had rendered me less able to communicate it in this Manner. One or two Circumstances they may safely depend on ; which are, my having credited every Person who permitted me, for the least Information I have received on the Subject ; and the strict Truth of whatever I have affirmed, as of my own Knowledge. From some Consciousness of my great Deficiency in most Virtues, I have long endeavoured to possess myself of that *Love of Truth*, which is the sacred Root of many : tho' instead of obtaining the Fruit, I have generally only made a faint Approach towards such Virtues, as border nearest on my ruling Vice (for it can scarcely be termed a Passion) and made a Shift to avoid such Vices (which may be easily avoided) as are remote

most from it. An Indolence, which I am willing to suppose very constitutional, being not my least Vice, has effectually secured me from that which the Apostle emphatically terms *Idolatry*. This makes me extremely indulgent to my *Infirmity*, as I love to call it, especially when I reflect, that I suffer it to hurt but one; and when I clearly discern that same *Idolatry*, to have been a powerful predisposing Cause to a Majority of our Miscarriages by Inoculation. Hence I have freely allowed myself in a general, not a personal, Censure of this raging Source of mortal Error in others, from a moral Certainty of never being affected by it myself.

If I should ascribe my Conduct in this Respect to my Reflections on the Disparity, and very different Duration, of mental and palpable Riches (as the latter cannot *long* survive the general Conflagration) I am apprehensive I might too greatly indulge the Impulses of my Vanity, and credit myself for too much. Wherefore, supposing no such Reflections to influence me; whether it be owing to any Peculiarity in my olfactory Nerves, or to any Defect in my very Brain, the Fact is certain, — that the *Odor lucri*, the *Scent of Gain*, has never operated sufficiently there, to rouse me to any Effort that appeared oblique, intrusive, or ungenerous to me; nor indeed to many which seemed not such, if attended with considerable Difficulty. I have sometimes entertained myself with reflecting, what an Air of unfashionable Disinterestedness this Indolence may assume; and have often been whimsically comforted, when I heard a passing Bell, or read of a high-born Decease, with the Certainty that I was guiltless on the Occasion; and that I could defy the mistaken Spectres, if they should shake their Heads at me, truly to say, *I did it*. This Consideration perhaps has attached me particularly to Inoculation, as the Consequences of

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this

this Practice excite so very few Apparitions to interfere with a Doctor's Slumbers: and I have still some Qualms, after a Practice of near forty Years, both much and little, about the entire Innocence of very frequent, however legal, Homicide, (or perhaps only Chance-Medley) tho' occurring according to the strictest Rules and *Decorum* of Art. As I imagine I have discovered myself more adapted by Nature, which a Physician ought to follow, to think in Aid of others, than to bustle considerably for one; and am at least full as fond of the Science, as of the (a) Trade, I am secure from envying Gentlemen of superior Acquisitions by the Profession, whom I can unaffectedly esteem, when untainted with Illiberality and Insolence; and truly love, when their Characters are truly amiable. Conscious of certain grateful Feelings from these Approaches towards Candour (that elegant and consummate Honesty!) in my own Mind, I have sometimes been disposed to pity those I have thought destitute of the like; which seems almost inevitably the Case of all the very greedy and grasping, the most ungodlike Character, except the Cruel, of which I can form any Idea.

Every rational humane Person will properly distinguish, at the same Time, what Conduct the Accidents of a large Family and the *res angusta domi* will laudably suggest; in which Situation extraordinary

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(a) Non ego tantam mihi credo eruditionem, sagacitatem, vel experientiam, ut sperem a ferme ignoto multos arcessere suae salutis praesidium: ut quererem aut inviderem, quod plurimis, meritisimò celebrioribus, conservatio vitae, quae mortalibus (heu! parùm prospicientibus) tanti videtur, prudentissimè confissa est. Deinde artes, assentatiunculas, et sui venditationes, quibus nonnulli, diversa prorsus indole, sibi fautores asciscunt, forte nimium, contra quàm mos est, negleximus; ea quippe rati quae homini non improbissimo, non impudentiori, neque invido malè congruerent, neutiquam decuisse medicum. Nimio plus quàm vellem hinc fortè vacat, &c. — Praefat. ad Pop. excerpt. quaedam, latine reddita, Edita Londini, 1749.

Industry may result from Duty and Affection in the worthiest Hearts. The continued Activity of such as are warmed by the abstracted Love of doing Good is entitled to the warmest Applause : and no inconsiderable Allowances should be made to those who are excited, from a fair Love of Knowledge and Reputation. But where none of these Circumstances are in the Case, and such Conduct springs from the muddiest Source, in Persons already of very affluent Circumstances, it is scarcely excusable. If these think of Virtue at all, they seem to conclude there is but one, which is Industry : and if they can avoid that one great Crime, Poverty, from which they think they can never get far enough, they have little or no Solicitude about any of their other Crimes ; nor the least Dread of the great Difficulties, which the divine Author of Christianity affirms, Riches oppose to our Attainment of eternal Treasure and Beatitude. We are all convinced of *Horace's* sound Understanding, in *rating (a) Silver lower than Gold*, and ratify it as current *solid Practice*. But if we except a few unfashionable Folks (and yet the most select of these few happen to be in very high Life!) how universally do we dissent from his Calculation, of *Gold's being less valuable than Virtue!* This is considered as *meer Theory* ; and, partly for that Reason perhaps, so thoroughly disrelished.

And now having, as one established Perquisite of an Author, appropriated my tedious Preface to entertain the Publick, chiefly concerning myself and my Appurtenances ; to acknowledge some of my Obligations to my learned and candid Friends abroad ; and to fortify this Edition against the *unprinted* Detractions from the last, by my *t'other Friends* at home ; I hope the benevolent Reader will conclude my prefixing this partial Sketch of the

(a) *Vilius argentum est auro, virtutibus aurum.*

the Mind of an odd *Sexagenarian*, in none of its pleasantest Attitudes, to be as pardonable a Vanity, as a flattering Portrait of an Author's Countenance introducing his Title Page. J. K.

P O S T S C R I P T.

SINCE the whole of this Book, except the Preface, has been printed off, a young Nobleman of very high Rank has died of a violent Degree of the Small Pocks, after having been inoculated for it between eight and nine Years past. But having promised, that his Incisions never inflamed, and of course never suppurated, closing very speedily, we are warranted to add, that, "On the 16th Day from Inoculation he had a Fever and a few Pimples, which continued out for a few Days; the Slightness of the Eruption would not admit of any certain Judgment of its Nature or Species. Dr. MEAD, who then attended him, Mr. RANBY, who was called in to give his Opinion, and the Surgeon, who inoculated him, all were unanimous in declaring, that the Appearance was equivocal; and that, as the Infection had not produced the proper Effects upon his Arms, the present Illness and Eruption were not to be depended upon, and advised his Lordship's being inoculated again. This his most noble Parents had agreed to, and the Time of performing it was more than once nearly settled; however, from accidental Circumstances it was postponed, and was not done after the first Time."

For this, the most authentic Account, that could be procured of this young Nobleman's Inoculation, I am, or indeed rather the Publick are, obliged to the careful Enquiries of a truly learned and worthy Physician, who attended him only in his last Sickness; and who being, out of his real Philanthropy, a great Friend to the Practice of Inoculation, I received much Pleasure from his thinking with me, that it was both just and important the Publick should be informed of the true State of the Case. In such a Situation then, and under such Appearances, we imagine no competent Physician would pronounce a Patient exempted from variolous Infection. PYLARINI has affirmed the contrary. See P. 153, and Mr. Motte's Case, P. 148. The Reports of Lady Morris' and Mr. Scarwens' Miscarriage, P. 151 N* (of which Facts however we have not as yet been particularly ascertained) may lessen our Regret for the Omission of a repeated Inoculation in this Case. On the other Hand, the entire Innocence of a second ineffectual Inoculation in Master Hopkins' Case, P. 154, may incline us to wish it had been repeated here, as his Lordship proved finally but too susceptible of the Disease; and it is not the slightest Benefit of Inoculation, that in all Probability it generally betters

ters the Chance of the worst Objects of this cruel Malady. Indeed were we capable of discovering the very few and singular Habits liable, *as we are told*, to a second Small Pocks; since we have, *in Speculation*, supposed such a Re-infection (in Deference to a particular Authority or two) not *wholly impossible*, P. 43; there would be no Inconsistence in such a penetrating Physician's advising a second Inoculation to such a peculiar Habit, even after the first had been effectual. But as I never expect to arrive at this Sagacity myself, which I should admire in another, the best Reason for Re-inoculation, as it may be called, will be such a well-founded Doubt of the Efficacy of the first Operation, as happened in the present Case.

I have also been lately informed, by an eminent Surgeon, very conversant in this Practice, that two inoculated Children have very lately miscarried; dying under the Convulsions preceding Eruption, which Convulsions continued even after the Appearance of some Eruptions. This truly is an unusual Circumstance. One of these Patients was seen by the Gentleman who informed me; and who was assured of the other similar Fatality. Had these Cases, and my Information of them, occurred sooner, I might have inserted them P. 233, at the End of those Arguments, or Reflexions, which have occasioned my Suffrage, in general, against the Inoculation of *very* young Children: though still with a Reserve to the Conditions and Provisos recommended P. 236. I shall just add on this Occasion, that in the *London Chronicle* from September 1 to 3, the Deaths of Children under two Years of Age amount to 198; which happens to be exactly the Number of all the other weekly Deaths in the same Bill, from upwards of two Years to ninety. This indeed is an uncommon Proportion, tho' they generally exceed the Deaths from two to fifty, and not very seldom to sixty, inclusive. If this be added to the Observations and Reflexions, P. 231, &c. perhaps it will prevail on such humane Practitioners, as may often be superior to the *auri sacra fames*, the frequently stupifying Contagion or Influence of Money, to become cautious of their own Reputations at least; which may be construed to imply some Consideration of the great Fragility of the Lives of tender, innocent and amiable Infants. Indeed within the Bills, where such may be continually exposed to the natural Disease, some Plea may be alledged in Extenuation, at least, of this Practice: but if the Fashion should continue, it may also extend to Places where natural Infection is not; and as it will doubtless prematurely cut off many such Subjects, it may materially strike at the Increase of the People. This, it should seem, can never be worse timed than after the considerable Loss of them by War; and the Acquisition of more Dominion to be inhabited, improved, and defended by them.

TITLES

N. B. Preface, p. xv. l. 15. for *proposed*, read *professed*.



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O F

VARIOLOUS CONTAGION,

Or the external CAUSE of the

S M A L L P O C K S.

 T is much easier to describe the visible Effects of this Contagion, than to investigate, with Certainty, the precise Time and Place of its earliest Appearance: For tho' we shall find it may be strongly concluded to have been unknown to the antient *Greek* and *Latin* Physicians; such a Conclusion cannot be supposed to prove, that it might not exist at, or before, their Time, among People with whom they might not have the least Intercourse, and who might be destitute of the very Elements of Literature to record it. Such a meer Supposition, indeed, is equally incapable of Proof or Refutation, from our very obscure Notions of the Situation of different Nations on their earlier Emigrations, and their gradual Diffusion over the Earth after the Deluge: but with Regard to the *Jews*, of whom

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we

we have some historical Knowledge, tho' no ancient medical Writings from them, we have not much less cogent Reasons for supposing this Disease unknown to them under *Moses*, or even after the Commencement of the Christian *Æra*; since many other Diseases incident to them, and particularly their great cuticular one, are frequently named in both the Testaments; and the learned Dr. MEAD has met with no Passage in either, that induces him to mention it in his Treatise *De morbis biblis*; referring the Distemper of *Job*, which many of the Vulgar, especially since Mr. MASSEY's Sermon against Inoculation, have supposed the Small Pocks, rather to an *Elephantiasis*. *America*, which was most probably peopled from northern *Tartary*, has, with the greatest Likelihood, been esteemed wholly free from it, before its Introduction by the *Europeans*. Dr. FRIEND (1) conjectures it to have appeared first in *Egypt*, from *Rhazes*' mentioning one *Aaron*, who practised Physic at *Alexandria* in the Reign of *Mahumed*, A. C. 622, and who described the Symptoms, Kinds, and Cure of the Small Pocks. But we are informed by Dr. MEAD, (2) that REISKE, who was thoroughly skilled in *Arabic*, assures us, he found it affirmed in a Manuscript in that Language at *Leyden*, that the Small Pocks and Measles first appeared in *Arabia*, the Year when *Mahumed* was born, A. C. 572,* which

(1) Oper. p. 330.

(2) de Variol p. 3.

* Boulonvillars fixes his Birth on April the 9th 571.

which will sufficiently consist with *Aaron's* writing on it fifty Years after.

In the Year 1735 a *Latin* Treatise was published at *Wratislaw* by the ingenious Dr. HAHN, intituled *Antiquitates Variolarum*, in which he affirms the antient *Greek* Physicians certainly knew the Small Pocks. This we have not seen, but find it answered the same Year, by another *Latin* Treatise, *de Variolis et Anthracibus*, printed at *Hanover*, and written by the learned Dr. WERLHOF, Physician to his Majesty as Elector. This Gentleman maintains the Negative with much Erudition and Solidity. Dr. HAHN replied to it in 1736, and in some Citations from *Paulus Aegineta*, *Eusebius* and *Evagrius*, has given us their Testimonies of an eruptive Disease in their Time, which undoubtedly has a great Resemblance to it in many Circumstances. The Controversy was conducted with much Learning, with great Politeness, and even Amity on both Sides, to the reciprocal Honour of the Writers. We do not find that Dr. WERLHOF rejoined on this Occasion; and yet, after perusing this Reply of Dr. HAHN's (who spares no Pains to support his Assertion) and two auxiliary Letters from his Friend Dr. TRILLER, it still seems improbable that the antient *Greek* or *Latin* Physicians knew this Disease, since they have left us any Room for litigating their Knowledge of it. If they had really seen it, it is not likely it would be less contagious, or much less mortal, in their Climate than in ours; and if that

were the Case, they must have been more remiss, and less accurate than we have supposed them in the Description of Distempers, to have omitted such a specific Account of one so popular and fatal, and attended with so many *Crises* and *Stadia*, as should suffer us to confound it with any other eruptive Disorder, of which they were obnoxious to a great Variety. It is supposing them extremely inattentive and incurious, to omit taking Notice of its being manifestly contagious, as well as epidemical; not to advert to that extraordinary Circumstance of no Persons' being scarcely ever liable to a second Attack of it; nor even to mention the indelible Scars and Deformities it must have frequently left behind it. Finally we must observe, that this Reply of Dr. HAHN's, which was dedicated to Dr. MEAD, and some *German Literati*, did not induce the Doctor to alter his Opinion of this Disease being unknown to the Antients, which he has strongly affirmed in his late *Tractatus de Variolis*. P. 2.

But whatever Obscurity may attend the Investigation of its very first Appearance, which is not the most material Circumstance, the intimate Nature and *Analysis* of this external, material, primary Cause is likely to remain a Difficulty insuperable by the human Faculties. And indeed if such *Analysis* might certainly conduct us to the Discovery of its specific Remedy or Antidote, which some have imagined all Poisons to have, the Non-attainment of it may be considered as one of those partial Evils, to which the Condition
of

of our Nature here irretrievably subjects us. For notwithstanding the utmost Penetration, which many Individuals may be willing, from an ultimate Fondness for themselves, to credit their Species with, it is evident, that our least perplexed Reasonings on such exquisitely minute Parts, and active Modifications of Matter, as elude our Inspection and Cognizance, must be taken from their sensible Effects ; and from our partial Knowledge of such Substances, as commonly enforce, or resist, their Operation. And here by the Way we may reflect, how simply at once, and how effectually, Nature has limited the Discoveries of Men, by rendering the Figure, Cohesion, Simplicity, or Composition, of certain Systems of Matter too subtil to be examined by our Senses with the utmost Assistances of Art ; which seem sometimes to have instructed, have often entertained, and now and then have probably misled us.

It is certain indeed that DIEMERBROECK mentions, (a) and even asserts a visible pestilent *Nubecula* or Vapour, expired from Persons at the Point of Death in the Plague ; and HODGES (b) admits

(a) Hic est ille halitus verus (a multis pro fabula habitus) de quo vulgares loquuntur, cum dicunt, se vidisse ab aegro, extremum spiritum reddente, exiisse venenum pestilens, insular parvae nubeculae ceruleae, idque se insinuasse in hanc vel illam rem — docet experientia, ex rebus illis, in quas talem nubeculam transferri viderunt, postea casu commotis vel excussis, pestem non semel aliis adstantibus communicatam fuisse. *De Peste*. P. 67.

(b) Attamen non is sum qui inficior auram subtilissimam saepenumero corporibus crassioribus, pinguibus et densatae materiae immixtam, et fore olfactu et conspectu perceptibile. *Loimologia*. P. 42.

admits the Adhesion of a pestilent Vapour to the Curtains, &c. But these rather prove the Visibility of the animal Vapour or Moisture including it, which is also the Case of the variolous *Pus*, tho' a more gross and palpable Vehicle : So that it seems abundantly inferable on the whole, that neither the pestilential nor variolous *Miasmata* can be seen, abstracted from their involving Materials, any more than they can be weighed, or measured, by us.

But it may be affirmed perhaps, that the variolous *Primordia*, or Principles, are the Subjects of Smell, thro' which we are often supposed to be infected by them; since every Person is sensible of a peculiar *Fætor* or Scent (which it is scarcely possible to communicate an Idea of in Words) exhaling from suppurated Pustules, and many have justly imagined from the Breath too, of Persons in this Disease. It may be controverted however, whether this Sensation be immediately excited by the multiplied Principles of the Distemper, blended with the exhaling suppurated Humours; or be only the meer Smell resulting from that Corruption of the Humours which they have produced. We are abundantly convinced of the evaporable Nature of the animal Fluids in a sound State, and of a sensible Difference of the Odour of the Particles perspired in opposite Complexions and Constitutions: And it is past Doubt that their Avolation, or rising Steam, in a morbid or putrid State, will be attended with a sensible Difference, to whate-

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ver Cause such State were owing. Yet as there is a Sameness in the Scent of this Distemper, in the same Degree, in all Constitutions (some Respect being had to the particular Smell of the Perspiration from particular Bodies) supposing no Mortification of the Fluids nor Solids to supervene; it seems probable enough, that this peculiar State of the Humours could not be generated by any other Cause; nor less probable, that the exhaling Principles of the Disease concur with the transpiring Humours in compounding the variolous Scent: Since those admitted Particles, whose Increase stimulates the whole Machine so powerfully afterwards, are not likely to be applied to the sensible Membrane of the Nose, without some Degree of Irritation.

By the way it may be suggested here, that perhaps all the abstracted Objects of Smell may be of such very minute Extension, as to render them incapable of reflecting Light, and consequently Colour (at least to Creatures without microscopic Eyes) whence they must be necessarily invisible to us; and that their Levity must be more considerable than that of the *Medium* they float and ascend thro', on which their Diffusion and Activity must partly depend. It seems probable too, that they are exerted from the emitting Body with some Spring and Expulsion; and the different Degrees of this from different Substances may well concur to diversify the Strength and Extension of different Smells; since the various Degrees of Motion, and Modes of Appulse, will
have

have their Effects, as necessarily as the Diversities of Bulk, Weight and Figure.

Let us consider, before these Reflections on Contagion by Smell are rejected as minute and trivial, whether they may not tend to some practical Use; and enforce the Reasonableness of that Defence from this most pernicious Mode of it, which common Sense suggests to every one, of carrying some odorous Substance in their Nostrils, when they are obliged to visit infected Places: since the very Room they occupy in the Organ of Smell may obstruct the Admission of the variolous Vapour that Way; while the Odours they emit, in a greater or less Quantity, and with some Force too, may actually repel, diversify, or weaken, its malignant Appulse, *in ipso limine*, on the very Threshold. As we are satisfied that Musk is not an Odour, which repels or destroys the variolous *Miasmata*, since the *Chinese* add it to the infected Pellets they convey into the Nose to impart the Small Pocks; perhaps some of the graveolent or strong smelling Substances, as *Asa foetida*, Rue, *Galbanum*, Camphire, or the like, which exert their Scents to a considerable Distance, might be found available. And as the vapid effœte Air, and the Humours we expire with it from the Lungs, are probably ejected with greater Force than our ordinary superficial Perspiration is, and Contagion is often received by Respiration; it were not amiss perhaps, if the Breath were also impregnated with certain preservative *Effluvia* on such Occasions. The faithful and experienced

ced DIEMERBROECK (1) assures us, that he found the frequent smoaking of Tobacco to be not only a considerable Defence in his daily Attendance on Persons in the Plague of *Nimeguen* 1635 ; but even expulsive of the Contagion he manifestly received more than once : Whence we may infer, *a fortiori*, that this, or some other Fume, might act with equal Prevalence against a Poison, somewhat less pernicious and active than that of the Plague. Yet the same
 * Author judiciously disapproves the taking of Tobacco in Substance, or Infusion, in the Plague, from its violent and debilitating Operation. Now if any particular † Fume, or Odour,
 C were

(1) De Peste. P. 62, 63, 294, & alibi.

* It appears from *Diemerbroeck*, if we may calculate from his Histories, that the Plague kills much above the same Proportion that escape thro' all the different Degrees of the Small Pocks taken together: For out of his 120 Histories of the Plague, a few of which regard more Patients than one, 91 died. We may, on this Occasion, contraste the Candour and Modesty of this brave and worthy Physician, with that of our modern Quacks and Advertisers, who are zealous enough to publish and exaggerate every Success, or Non-failure, of their *Nosstrums* ; as there can be little Disingenuity in affirming, they are not less solicitous to conceal their ill Consequences or Inefficacy. It were to be wished therefore, that every Friend to the Public, who has been a Witness to any Instance of the latter, would as carefully apprize the World of it ; that the real Merit and Demerit of their *Nosstrums* may appear from an equitable Calculation.

† An Experiment might be made by the Chinese Inodoration, whether any of the abovementioned strong-scented Substances, or any other, being added to the variolated Pellets, would prevent Infection from them. And if this should succeed (tho' it seems rather to be doubted) an Experiment might be made on a criminal Subject of this Disease, immediately, or soon, after simple Inoculation ; whether taking and repeating such Substances, or such a Medicine as *Boerhaave* recommended, would prevent its Operation on the Blood, or expell it without Eruption.

were found repeatedly preservative from this Infection (since very different Smells possibly may, like opposite Tastes, soon efface or extinguish each other) it would naturally lead us to try an Exhibition of the odorous Mass itself, if not deleterious, whenever there was a Certainty, or strong Suspicion, of an infectious Accident. We have at present sure Remedies for the Bites of some venomous Animals, which before were certainly mortal; and Analogy may induce us to hope, that this material, tho' subtil and invisible Poison, when received, is not without its Antidote; nor even its Vapour without a Counter-vapour. At the worst a fruitless Investigation of such a Preservative would leave us but where we are; and might possibly repay the Investigator, as COWLEY says of the Alchemists searching for the Philosopher's Stone,

With good unsought Experiments by the Way.

The honourable Mr. BOYLE observes, not less justly than curiously, (1) 'that the Steams of Bodies may be almost as various as the Bodies themselves that emit them; and that therefore we ought not to look upon them barely under the general and confus'd Notion of Smoke, or Vapours; but may probably conceive them to have their distinct and determinate Natures, oftentimes, tho' not always, suitable to that of the Bodies from whence they proceed.' Of Wormwood particularly he observes, 'that himself and
others

(1) Fol. Edit. Vol. 3, P. 328, 329, 331.

others coming into a Room where some Quantity of it lay, found not only their Organs of Smell wrought powerfully upon by the Corpuscles that swarmed in the Air, but that their Mouths were also sensibly affected with a bitter Taste.' He infers soon after, 'that if our Sensories were sufficiently subtil and tender, they might immediately perceive, in the Size, Shape, Motion, and perhaps Colour too, of some now invisible Effluvi-ums, as distinguishable Differences, as our naked Eyes in their present Constitution see between the different Sorts of Birds, in their Appearances and their Manner of flying.' And (2) elsewhere he ascribes, with others, the pretty certain Cessation of the Plague at *Cairo*, on the Rising of the *Nile* about the Middle of *June*, to the Exhalations from the River, and the Falling of a particular Dew at the same Season.

As we are treating here of Contagion by Scent, it may not be amiss to caution such uncertain Subjects of this Disease, as visit their variolous Friends or Acquaintance without any Apprehension of it; some, from a Tradition, that they have had it slightly in their Infancy, 'till Instances of a few of them receiving the true Disease have proved the former Pustules a different Eruption; and others, from a silly Prepossession, that they shall never take it, as they escap'd thro' former infectious Situations, or their Parents are said to have died without having had it; such, I say, should cautiously abstain at least from visiting Persons under the fe-

verest Load and Symptoms of it : Since besides that the horrid Aspect of a Friend in that Situation may possibly, in some Measure, infect the very Imagination, the Vapours from that Putrefaction, which often accompanies such a Degree of it, may superadd a different, and not less fatal, Infection. The following certain History may justly enforce this Caution.

A waiting Boy in a Coffee-house in *Fleet-street* being allow'd a Holy-day in Summer, about 18 or 19 Years past, went with his Companions to *Shepherds-Bush*, where the Body of a Murderer had been gibbeted for some Time before. The Day was sultry, and the Body extremely offensive. The Lad came very near it, and was quickly struck with a most nauseous Stench. He returned home, directly sickened of a Fever with a vehement Head-ach, and died in 7 or 8 Days, complaining to the last of the same inextinguishable Stench. He complained also of a Pain in his Knees ; and one of his Companions, who was likewise infected, but survived, had such an incurable Lameness, that he was forced to quit his active Employment in a public House ; and was put Apprentice to a Shoe-maker in the Country. But this by the Way.

Repeated Instances seem to render it probable, that Infection has been propagated by the Sight of Persons, some Weeks recovered from this Disease, when they had been repeatedly purged ; and where we might reasonably presume them divested of every infectious Thread. Now not
withstand-

withstanding we can suppose, at least, where any variolous *Effluvia* are still transpiring (tho' the least active will transpire the latest) that they may penetrate the very Eye with the immitted Light, and be transmitted from thence by the Optic Nerve to the Brain; and can also imagine that Bodies, abounding with the variolous *Pabulum* or Fuel, may be more strongly attractive of such *Effluvia*, and become impregnated with a less energetic Ray of Infection, than would be necessary to excite the Disease in Constitutions, which have a fortunate Scarcity or Dampness of it: Yet where we suppose a total Absence of such *Effluvia* (which particular Circumstances may very reasonably induce us to suppose) and Infection speedily succeeds the affecting Appearance of a late variolous Subject (which can present but a softened Resemblance of the Disease at its Height) this Mode of Infection, with Regard to our shallow Penetration, may be termed metaphysical, and is what the merely corpuscular Philosopher will deny the Possibility of, with an *ex nihilo nihil fit*. But such as can submit to the coercive Evidence of plain Facts, whose Causes they are sensible exceed their Investigation; and who have Recourse to that Analogy which Nature observes in various Effects, will discover many such obvious Appearances, as strongly countenance the Reality of this Infection, tho' they do not demonstrate the Manner of it. The Sight of a Person yawning, and even of an emetic Bolus with some Stomachs, will frequently communicate the

the same Motions to the Spectators, which corporal Laffitude and material Stimulation produced in the Yawner or Patient. People of moderate Observation must have been convinced of very material Effects from present Objects, and even from the Ideas of absent ones. I have been sensible of a short and slight Irritation in my own Eye, from inspecting, and not long, the inflamed Eye of a Relation. I am not naturally subject to such a Disorder, and this Effect has been repeatedly affirmed by medical Writers. Now if this was not in Consequence of my Imagination's being affectingly impressed by Sight, there must have been a Transmission of some visible irritating Particles from the inflamed to the inspecting Eye. If Imagination *did* produce such an effectual Commotion in any of these Organs, will the affecting Sight of the late Subject of a dreadful Distemper, be less adequate to kindle up the Operation of the variolous *Fomes* or Fuel in the Blood; which Fuel will appear very probably to consist of its most active and inflammable Particles? Not that I would contest a material Contagion from the Eyes of a very recently recovered variolous Patient; since a Person, who reflects with much Attention on this Subject, may rather be disposed to fancy the very Passions attended with potent *Effluvia* exerted from, and admitted thro', the Organ of Vision; whose transparent Humours are extremely fine and defecate; and, as they are constantly supplied; must necessarily also be expended and transpire: In which Respect they will
only

only correspond to the rest of our Surface, which the Sagacity of *Hippocrates* discovered to be εἰσπνεον καὶ ἐκπνεον, inhaling and exhaling, in spite of his crude and inaccurate Anatomy. The Looks of the Malicious are darted with so acute an Obliquity, that they have been supposed by the antient Vulgar to emit a baneful Influence :

Nescio quis teneros oculus mihi fascinat agnos.

Our modern Multitude term it an evil Eye; and to our natural and strong Aversion to such Aspects, perhaps we owe the Fable of the Basilisk poisoning with his Looks: Tho' it is certainly well attested, that the Rattle-snake of *America*, whose Eyes in Pursuit of his Prey are extremely sparkling and emissive, has this fatally fascinating Power over the Squirrel. * It is not unlikely indeed, that the great Terror of the little Quadruped may render it delirious; to which an odd musk-like Odour, that is sensibly diffused from this Viper abroad, and perhaps particularly so at such a Juncture, may materially contribute. In the Passion of Love, different Regards of the Countenance, as it is fortunate or otherwise, have been said to act as Cordials, or chill like Diseases: as if certain very different Emanations were emitted

* Mr. *Freeman*, a Gentleman of Probity and Repute at *Putney*, assures me he was an Eye Witness, in Company with another, of a Mocking Bird's running thus into the Jaws of a Rattle-snake; after much Flutter and Agitation to and from him, as he lay at the Foot of a Tree. Another Gentleman assured me of his having seen the like Fatality happen to a Nightingale near *Rome*, from a large Serpent of another Kind.

ted from, and admitted thro', these Avenues to the Soul ; whence Dr. BAILY says prettily enough in his *Married Coquet*, ' Did you ever see me tangling Eye-beams with any Female ? ' an Image, that could occur only to a Physiologist. In brief, when we consider the extraordinary Proportion and *Apparatus* of Nerves allotted to the Functions of this Organ ; the intimate Connexion between its Office and that of the imaginative Faculty of our immortal Essence ; and farther reflect on the certain Effects of our different Passions on these wonderfully organized Habitations of our Souls ; tho' it will not demonstrate the precise Mode of their *Hypostasis* or Union, nor the perfect Nature of abstract Mind, which, like the Eye, perceives all Things but itself ; yet any corporeal Impressions from sudden Dread will, like many other *Phænomena* we familiarly see, and cannot account for, surprize us less.

After all that has been urged against the impressive Force of the Imagination of pregnant Women, too many visible Effects, joined to the Sentiments and Attestations of many eminent medical Writers, must preponderate, methinks, to our admitting it. Not to amuse the Reader with any amazing Instances of it from FIENUS and others, who have collected many more than they gave Credit to, I shall insert a very modern and authentic one, which satisfies me as well as a thousand. The Right Honourable Lord COLVILLE (whose great Humanity and Goodness will pardon this Freedom) and my good Friend Mr. ALLEN,

ALLEN, formerly his Surgeon on the Station at *Boston*, assured me they had frequently seen the Child of the Carpenter of the Ship his Lordship commanded there, who was born during that Station, with a remarkable Hare-lip. This the Mother declared to them happened from another of her Children running in, screaming, from a bigger Boy with a great Hare-lip, who was pursuing him to beat him, about the third or fourth Month of her Pregnancy. The Surprize and Terror from it threw her into a fainting Fit, on her Recovery from which she said, she was certain the Child she went with would be marked with the Deformity, which the ensuing Birth, at the ordinary Term,* verified. And in fact so greatly did the fatal Copy in this Case exceed the Original, that the Division of the Infant's Lip was continued into a Fissure or Cleft of the whole Roof down to the *Uvula*, commonly called the Palate, which was bifid or cloven ; whence the poor Child being badly qualified to suck or to swallow, died, as it were starved, within a very few Weeks after the Birth. Now in this Case it seems absolutely improbable, that any *Effluvia* from the Hare-lip were received by the Mother, or the *Fœtus*. But her Imagination, terribly impressed by such a disagreeable Sight, tho' unable

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to

* A Case almost exactly like this is attested by *Boerhaave* as occurring at *Leyden*, within his own Knowledge. It is briefly related in his *Prælectiones de Nervis* p. 560, published at *Leyden* by Dr. *Van Eems* 1761. But this Impression was made in the eighth Month of Pregnancy, at which Term *Mauriceau* thought the *Fœtus* too far advanced to be susceptible of any Mark.

to alter her own fully formed and solid Lips, was effectual, and doubtless much against her Will, to imprint this aggravated Copy of the original Deformity, on the yet yielding and waxen State, as we may call it, of the Lips of her *Embryo*. And notwithstanding the secret Process which produced this Effect, may elude our Investigation ; yet since the Effect is incontestable, and the visible Hare-lip in the grown Boy transmitted no infectious Atoms, that Disease being no ways humoral, but a meer bad Formation ; the Mother's Imagination or Picture of it must have been the immediate Cause communicated, thro' her Mind, and impressed on the Lips of the Fœtus ; which we conceive must be admitted as an ideal Cause, tho' acting upon Matter to a visible Effect. And here a Man might naturally be tempted to wander into some metaphysical, yet not wholly impertinent* Reflections, on this very curious Subject,

* Thus, abstracted from those celestial Messengers and supernatural Apparitions, which Heaven, for great Purposes, may perhaps sometimes, however rarely, have sent or permitted, the human Imagination seems, and not very seldom, to have created, as it were, Spectres or Phantoms, to the great Terror, and frequent Detriment of its Owners ; the Delusion in such Cases overpowering the Testimony of the Senses. Exclusive of any Disease, in which it may be perverted by the State of its Instruments ; in Dreams of the healthiest Persons, such affecting Images and Circumstances are sometimes presented to the Mind, as strongly excite its different Passions, employing the corporeal Motions, as in the *Noctambuli*, or Sleep-walkers, and producing such impressing Ideas of Horror, or such mental Extasies, as are inconsistent with Sleep. Hence this surprizing Faculty may be conceived as sometimes endued with Powers, tho' in a much lower Degree, yet analogous to those which the Scripture ascribes to Faith ; and thus be considered

ject, which would probably be more agreeable to a few of his Readers, than to the Generality. — But the present Question is, Whether a Sight of the fresh Marks of the Small Pocks, after all the infectious Particles are entirely evaporated, may not as powerfully excite the Action of a plentiful variolous Fuel in the Blood of the Spectator (especially if he was surprized at the Sight) as the Mother's Sight of the Hare-lip communicated the like corporeal Deformity to the organized, or as yet perhaps organizing, Body in her Womb? And this Question appears to me to resolve itself pretty clearly in the Affirmative of ideal Influence; or Excitement, since it cannot strictly be termed Contagion.

Perhaps, however, a curious Reader may doubt, whether he shall attribute the Infection of a *Fætus*, whose (a) Mother had long before past thro' the Disease (but in the latter Months

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of

considered as a very inferior Resemblance or Transcript of its transcendent Source in the Deity; with whom to imagine, to will, and to effect is one instantaneous and indivisible Act; however incomprehensible this may prove to us, as our Comprehension is certainly very limited in this State, on which Limitation perhaps our Completion and Beatitude in another may partly depend. At the worst however, this Conjecture is, but what we have been treating of — Imagination.

(a) Memini mulierem quandam, quae ipsa morbum hunc diu ante perpeſſa erat, marito ſuo, eodem laboranti, ſub finem graviditatis aſſidue aſſidentem, foetum recto partus tempore enixam eſſe. Et illa quidem de variolis nihil contraxit; foetus vero mortuus, totoque corpore, mirum viſu! puſtulis toedatus ſe nondum in luminis oraſegreſſum huc haec conſumptum fuiſſe manifeſte comprobavit. Mead *de variolis*. P. 66, 67.

Dr. Fuller mentions three Inſtances of the like Infection. *Exanth.* P. 192.

of her Pregnancy attended her Husband in it, without the least variolous Consequence to herself) to a material; or, if we may be allowed the Expression, to an ideal Infection. As the *Fætus* is not supposed to respire in the Womb; and has most probably no Inhalation there of any Thing exterior to the Mother, so many Avenues to Contagion are closed up. It seems difficult to conceive that the Humours of the Mother, which had been already discharged of the Fuel necessary to the Disease, were a Vehicle or *Medium* of Contagion to the *Fætus*; especially if we embrace that Opinion, which supposes no Circulation of red Blood between the Mother and it, but concludes the red Blood elaborated by the Organs of the *Fætus*, out of the Humours absorbed by the *Placenta*; as we see the Blood of the Chick in *Ovo* manifestly elaborated without any further Communication from the Hen, than that of incubating animal Heat: except we should conceive her to perspire some very attenuated Fluid thro' the Shell and its Membranes to their Contents, which seems a more subtil than probable Conception.

But supposing the non-infectable *Serum* capable of conveying Infection, it is unknown how long the variolous Atoms (which may be received by all) are retained in such Constitutions as are no longer obnoxious to their morbidic Operation. I never remember myself uneasy under respiring them, except in the first Patient I saw, who had a great Quantity of Pustules, with great
Putrescence,

Putrescence, the Stench of which, after a little Qualmishness, soon purged me: I can also recollect a single Pustule on my upper Lip after it. Indeed Physicians, largely employed in this Distemper, must be very disagreeably situated, if even such Consequences were not very unusual. Yet it must be retained some Time in the Mother's Fluids, to impart a material Infection; and possibly in Consequence of her Pregnancy with a Subject so very susceptible of the Disease, they might be more retentive of it: While its occurring, however contracted, before the Birth, must infer its *Pabulum*, or Aliment, conceived, congenerate, or born with us, and virtually existent in the *Ovum*, *Semen*, or both: or otherwise the Humours, that constitute and nourish the *Fætus*, must have acquired, in his System, a Disposition they had lost in their own. The Infection from an infected Mother is conceivable and * common enough, since the Stream may well be as impure as the Fountain. And tho' even in the present Case I do not presume to exclude a material Infection, because I find it very difficult to discover the Admission, or to investigate the † Rout, of it: yet, that the Circumstance of

* Yet this is not *constantly* the Case, an ingenious Anatomist having lately assured me, he opened the Body of a Woman far advanced in her Pregnancy, who died of the Small Pocks, without imparting the least visible Infection of it to her Fruit. Had this Child lived and grown up, perhaps it might have proved one of those few Subjects exempted from this Disease.

† Air may undoubtedly be involved in the Fluid communicated from the Mother to the Fætus, and such Air be contaminated with

of the Mother's Imagination being perpetually occupied with the Appearances of this Disease; in so interesting a Subject; might excite the Operation of a plentiful variolous *Fomes* in her Fruit; without material Contagion; is to me, one of those many difficult Probabilities,

— *Quae nequeo monstrare et sentio tantum.*

The most obvious, if not the only, practical Inference from this Speculation is, that it were to be wished all Persons, residing in large and populous Towns, and recently recovered from this Disease; especially as many as wear the severest Traces of it, would, where their Condition will admit of it, impose a reasonable Confinement or Recess on themselves, for the possible Benefit of such as are still liable to it.

But as we are susceptible of efficacious Impressions also, from (a) Discourse and Reflection, it would be still more surprizing, if this Infection could be created, as it were, by frequent talking, thinking, or from a constant Dread of it; to which

with the inspired Contagion, that was inoperative on the Humours of the first Recipient, though it must have found a luxuriant *Fomes* in the foetal Blood. This however must give us such a Notion of the exquisite Minuteness and Penetration of the Particles of this Poison, as may nearly equal those of the magnetical or electrical *Effluvia*: and it is too natural for us to hesitate at such abstract Suppositions, as our Imagination, that is chiefly affected by sensible Objects, is inadequate to the Defiguration of: tho' perhaps the Number and Variety of the evanescent Modifications of Matter may equal those which are humanly perceptible.

(a) Ex audita historia truculenti casus turbata mater similem accepit efficacem ideam. *Boerb. Praelect. de nervis. V. 2, p. 557.*

which last Motive *Lucretius* (a) impiously ascribes the first Notions of a Deity. This Manner of exciting a Disease (supposing its Possibility) must also be ideal, and that in a kind of descending or secondary Degree: since the impressing Idea in such a Case, is not caused by the present and visible Subject whence it first arose; but from its Remembrance and Name, from thinking and discoursing of it. The notorious visible Propagation of yawning has been already mentioned; and I am convinced, that talking or even thinking for some time about it will produce the thing itself; so that the very
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(a) *Primus in orbe deos fecit timor.* ———

I should conceive for my own Part, that a truly intellectual Reflection, abstracted from every religious Pre-occupation, would suggest the Wisdom of God, from a full Survey of the Creation, as instantaneously as his Power: since the absurd Exercise of the utmost Power must impress but a very uncouth Idea of Perfection. Now the Attribute of Wisdom would be apt to excite Admiration and Respect: tho' Love or Fear might be indifferently suggested from the Conception of his Power, according to the different Scene and Situation in which the unexperienced, but unprejudiced, intelligent Creature at once found himself; whether in a soft and temperate Climate, blooming with every Object to excite and gratify his natural Appetites; or in an extremely fervent or rigid one, surrounded with all the terrifying *Phænomena* of Nature, afflicted with painful Sensations, and finding nothing desirable or lenient. The latter Scene might well indeed inspire him with that Dread we conceive from the rigorous Exercise of a cruel Superiority: tho' surely the former must equally operate to the Effusion of Love and Gratitude, when we considered his Power as essential to our Comfort as his Wisdom: whence Hope might act as equivalently to the Belief of the Deity, as Fear. But as *Lucretius* has had no Regard to this Consideration, and speaks, on this Occasion, rather like an Advocate *ex parte*, than a Judge, who is to survey and ballance every Circumstance, he is certainly too partial here to be philosophical. But this by the Way.

Reflection on it, by reviving its Idea, must determine the nervous Influence, whatever that may be, to act in the same Manner, on, what we suppose the common Sensory, and thence on the same Muscles, which are employed in producing that slight and short Convulsion (tho' from a different Cause) in another Person. But not to subtilize too much on this Appearance, which can scarcely be termed a Disease, we acknowledge, we have never known nor heard, that in Countries, far removed from this * Contagion, any Horror of it has ever produced its Effects in the most inflammable Constitutions, and under the most inflammatory Way of living; tho' in a variolous Atmosphere People have been known to colour on the Disease being mentioned, and to sicken very soon after: one Instance of this I have really seen, but must observe, that the Gentleman, who was preparing for Inoculation, had very imprudently been at the Theatre the Evening before. He got well thro' a large Crop of the distinct Small Pocks. Mr. BOYLE attests his having seen a Lady of Condition masked, on Account of the Small Pocks, at a Visit, whose Husband then present informed him, she was seized with them, on hearing a Person inadvertently mention the Lady's Sister having them, which was before carefully concealed from her; there having been no Intercourse between them during her

* Dr. Fuller says, to the like Purpose, he never met with a convincing Proof, that the Air alone, beyond, and out of the Sphere of Activity of the *Aporrhæas* of the Sick and infected Things, gave the Small Pocks or Measles. *Exanth.* P. 94.

her Sister's Disease. (1) But throughout *British America* they have always been able to trace every Visitation from it, up to its manifest* Introduction. And besides that nothing is more generally certain than the Observation of *Horace*, that we are more languidly impressed by hearing than seeing, we must reflect, that the morbid Effects of this Poison and the Traces of it are as proper Objects of Sight, as a Landscape, a Face, or any visible Object, which no verbal Description can revive an exact Idea of, tho' even a Pourtrait of them may; while the Life or Original communicates such a vivid and impressing one, as we can easily recollect.

Yet tho' Contagion seems not conveyable by meer Rumour, the (a) Dread, that is sometimes excited by it, has been thought by eminent Physicians to render the Subjects of any popular Contagion more readily and fatally impressible by it, whenever it shall approach their Residence. And indeed as great and habitual Fear is attended with an unusual

(1) Vol. 1. P. 513. Where is also annexed another extraordinary and well attested Instance of the Effects of Terror. Dr. *Fuller* has three Instances of this Infection from Fear or Pancy, in his *Exanthematologia*. P 189.

* It must be reasonable to infer from this, that such a Disposition of the Air, as several medical Writers have thought sufficient of itself to generate the Small Pocks without the least personal Contagion, has never hitherto occurred in the new World, whatever it may hereafter. The Climate of its Nativity may possibly be more obnoxious to a Reproduction of it.

(a) Etiam qui sunt timidi, et maxime hunc morbum (*variolas*) perhorrescunt, in eum promptius incidunt; timore enim miasmatis particulae a superficie corporis intus convehuntur.

Willis de Febris. P. 118.

fual Waste or Depreffion of the nervous Power, whence a lefs vivid and generous Circulation, and thence a diminifhed Perfpiration ; it is not improbable that the inhaling Veffels, in fuch a State, may be more abforbent of any ambient Contagion, at the very Juncture when the Blood is likely to be lefs depurated, both from the impaired Functions of the Organs, and from an Abatement of its ordinary Secretions and Excretions. Be this as it may, it muft be furprizing to reflect, that the Relation of his Recovery to a variolous Patient (whose real Difafe, by Reason of his exceffive Dread of it, was concealed from him throughout his Decumbiture) had fuch a mortal Effect, that he instantly dropped down dead without uttering a fingle Word ; which is faid, to the certain Knowlege of many, to have happened to a noble Patient of the late ingenious Dr. HOLLINGS : and this was near to being the Cafe of a Patient of two eminent Phyficians, one of them ftill living, which Patient fell directly into a Fit from the fame Occafion, but out of which he recovered ; both which Facts have been affirmed to me by one of the Gentlemen concerned in the laft ; and a third, very fimilar, occurring fome Years paft in *York-Buildings*, by a worthy phyfical Gentleman then in that Neighbourhood. Such Facts have indeed no direct Reference to Contagion, but fhew how very affectingly the Mind may be fhocked with the Idea of it, however excited. The Survivor here only can inform

form us, whether this were owing to * Joy or Surprize; as an Excess of either might render the sentient Principle inattentive to the Accumulation of the Blood in the right Ventricle of the Heart; whence no *Systole* ensuing, a fatal Collapsion of the pulmonary Arteries and the Lungs might ensue, and the Circulation instantaneously stop. This mortal Effect others, in (1) a briefer Manner, attribute to the immediate Dissipation of the vital Spirits, from the sudden and excessive Perspiration of the Brain and Heart. In such surprizing Events however, it were prudent not to omit an artificial Inflation of the Lungs, as we are informed that a (2) Man seemingly dead for above half an Hour, had been recovered by this Means.

It is too obvious however, that all the different Modes or Admissions of Contagion furnish us with no Idea of the Size, Shape, Texture or Density of its Particles. We are unwilling to *assert* what will admit of no Proof; but it is not irrational to *suppose*, that from the first Degree of

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Exility;

* *Boerhaave* appears convinced of the mortal Consequences, which may result from excessive Joy, by giving an Instance, within his own time, of the immediate Death of a young Woman of a respectable, but reduced, Family, on her Brother's (who had been made a Governor in *India*) shewing her on his Return, some rich Ornaments he had brought for her. *Prelect de nervis.* p. 553. Neither is it very strange, on proper Reflection, that great and sudden Alterations in the Mind should act as fatally, as great and sudden Alterations in the Air, and more instantaneously; their Operation immediately affecting those tender and intimate Recesses, and that exquisite *Medium* or Fluid, which may primarily, however inconceivably, constitute the *Nexus* or Union of Life with Matter.

(1) Sanctor. De Gorter. (2) Medical Essays. Vol. 5. Art. 55.

Exility, where Objects commence invifible to human Sight (fince many Infefts muft furely fee fuch as evade ours) there are innumerable minuter ones of material Exiftence, that mock all organical and artificial Infpection; whence we may conceive Exility as endless as Magnitude. We fhould be apt indeed to furmife, that Particles fo extremely light and attenuated would be incapable of any violent Operation on the human System; did we not reflect, that the Degrees of Motion, annexed to different Modifications of Matter, are as innumerable as thofe of Extension; that Velocity may be rendered equivalent to Weight; and that Form too is equally multifarious, complex, and confiderably operative. We fhould further contemplate, how porous and yielding many Particles of our animal Fluids may be, and how adapted to attract, and be impreffed by, the invifible Seeds of this Contagion: as certain palpable Poifons are known, like different Menftruums, to have their appropriate Subjects, fome acting on the Membranes, fome on the Blood, and others, not improbably, on the animal Spirits. The fufing irritating Operation of this invifible Venom might induce us to fuppose its Particles fpicular, fharp, or angular; but as they are generally received without a very remarkable Irritation, and not feldom infenfibly, they may perhaps be fmooth, and even fpherical, on their Admiffion; 'till after having been lodged and macerated a certain Term in their proper Soil, the human Blood, they burft their aerial

Capsulae

Capsulae and germinate, emitting their Contents, which attract the assimilable Parts of the Blood ; the Sphericity and Smoothness of whose Globules they probably more or less impair. In some Habits they multiply themselves and destroy its Cohesion, to such a Degree, that the red *Cruor* passes off by the Glands of the Kidneys, Intestines, &c. and attenuate it so far in all (probably by an Increase of its intestine, as well as circulatory, Motion) that the variolated Particles are transmitted to the Surface thro' those strait Passages, which, as red Globules, they could not pass in a healthy State ; while the *Foveae*, or Pitts, they leave in the Surface, and especially in the Face, demonstrate their own corroding Quality, or the vitiated *Crafs* of their involving Fluids. Hence they gradually transpire, and often with a monstrous Increase, moulded perhaps, in some of the perspirable animal Vapour, to the same invisible Form in which the Patient received them.

Many of these Effects of this Contagion are abundantly certain and perceivable ; tho' whatever is supposed of its Essence and Form is wholly conjectural. And as we perceive its Effects manifestly propagated from Man to Man, the Difficulty of accounting for this Disease in the first, who could receive it from no other, the variculous *Adam*, or Prototype, as we may term him, put Dr. LISTER on imagining, that both this and the venereal Disease were first occasioned by the Bite, or by eating, of some venemous Animal ; a Supposition rather whimsical than judicious. For
were

were we to suppose (what has never been known) that the eating, or Bite, of a venomous Animal might be attended with such an Alteration of the Blood, as should terminate in Pock-like Eruptions, with the general Symptoms and Stages of the Small Pocks ; it is not equally supposable, that the *Effluvia* from Pustules, so excited, should communicate the same entire Effect with the admitted, or injected *Virus*, which produced them; and thence extend the Disease to an indefinite Succession of Subjects, in whom the primary Cause never existed. Such an Hypothesis would make the Perspiration of a Person fatally bit by a venomous Animal, as dreadful as the Bite itself. Our Prison Distemper, which must be ascribed to the Force of very foul *Effluvia*, does not appear to be infectious in the * second *Series* or Instance; since those Spectators, who are infected (and too often fatally) by the Stench of the Prisoners, and are wholesomely and sweetly lodged,

* This we conceive will hold good, notwithstanding a few Histories contained in some former Magazine, and ascribed to the ingenious Dr. PRINGLE. One of them affirms the Infection of a Woman without Newgate, who took it from her Husband, a Carpenter, frequently employed in the Jail about the Ventilator; and who, besides the Infection he inspired, probably brought more home in his Cloaths, whence his Wife's might be equally from the primary Cause with his own, and with that of the Gentlemen infected in Court. Besides which we conceive, that the Lodging of some poor People in close little Apartments, and unventilated Allies, and their wretched Way of living from Necessity, Uncleanliness, or both, may produce Vapours not much less feculent and deleterious than those in Newgate: since we do not suppose the Air there rendered such by the Crimes of its Inhabitants, but by their Confluence and Confinement, their Squallidity and Wretchedness.

lodged, do not infect their Physicians or Attendants (which the Boy killed by the Stench of the Carcase, p. 12, did not,) but are very probably infected themselves by the immediate primary Cause of the Disease, the feculent excrementitious animal *Effluvia*, transported from the Jail to the Court in the Cloaths, or from the Persons of the Prisoners, tho' not actually then under the Disease themselves; and to the greater Diffusion and Malignity of which the Heat, Press, and Want of fresh ineffæte Air, in the Court (more crouded than the Prison) may well contribute. As a potent and contagious Poison then is generable from the Accumulation of excrementitious animal Vapours, will it not admit of some Doubt, whether Animals, expiring suddenly or soon in the Air-Pump, die solely from the *meer* Exclusion of elastic, or otherwise, vivifying Air; or whether the Retention of their own Vapours may not a little concur to it, as a positive and material Cause, with the Privation of Air? I have heard from Gentlemen, who have resided in *Turkey*, that the Plague has been seldom known to rage, as it is probably never bred, but in large and populous Cities; which, with regard to Health, and to the Contingence of Fire too, should never be too close and narrow. For doubtless, not only the Temperature of our Climate, but the great Flux and Reflux of the *Thames*; the Draught of Wind that generally accompanies the Course of Rivers; and the airy perflable Situation of this vast and populous City,

greatly

greatly conduce to the Healthiness of a Place, sometimes as replete with animal Steams as many Prisons are.* And here we submit it, whether the greater Mortality by the Small Pocks, happening frequently in Winter here, may not, in some Measure, be occasioned, as well by the greater Throng and Press of Residents during that Season, as by their constituting more Subjects of it.

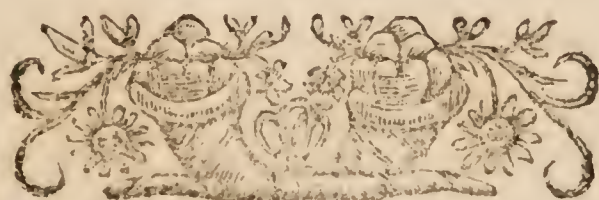
But to conclude this imperfect Contemplation of a Poison, whose Essence we can no more effectually investigate, than we can weigh Light, or analyse Darknes (whence it may seem equally prolix and fruitless to many, tho' it should entertain a few) we shall observe, that an attentive Consideration of its general Effects may suggest such a tolerable Conception of it, as shall dispose

* Hence in various Disorders, but more particularly in those of the Breast, many of the Inhabitants find the best Advice, and most potent Medicines ineffectual, without the Assistance of a more pure and simple Air. We may hence also form some Estimate of the great Advantage of Ventilators in Jails, Hospitals and Ships; in the last of which, especially when overcharged with Prisoners, we have heard, from undoubted Testimonies, the most satisfactory Accounts: So great are the Benefits that have accrue'd to our Species, from the Talents and Assiduity of one genuine Philosopher and Philanthropist, whose long Life has been employed, with an unostentatious humble Imitation of his divine Master, in meditating, in doing Good — Scarce had I closed this grateful Acknowledgement of his living Merit, and of my personal Obligation to him on a very short Acquaintance, when the News of his Death assured me, his benevolent capacious Spirit was received with an *Euge bone et fidelis!* into a Fruition of the Treasures he has perpetuated above, by a charitable, unambitious Care to accumulate so little below.

— *Cui pudor, et justitiae soror
Incorrupta fides, nudaque veritas,
Quando ullum invenient parem?*

dispose us to the most rational and successful Treatment of the Disease; by directing such *Regimen* and Remedies as oppose its extreme Effects, without frustrating its *Crisis*; and by avoiding such, as are generally attended with some of its own Operations. Not that we deny but some very extraordinary Symptoms, whether from an unusual Irregularity of the Disease, or the peculiar State of a particular Constitution, may justly warrant (from a directly vital Indication) such Method or Medicines, as are not agreeable to the general Disposition of the Small Pocks.

Nevertheless tho' we have declined here, and always necessarily must decline, a precise and material *Analysis* of this particular, invisible, and volatile Poison; yet when we treat of its Effects on the Blood, by a Combination with its inherent Fuel or Nourishment there, we shall attempt to infuse the most suitable Idea of it, which the Process of the Distemper, and our moderate Qualifications shall present us.





SECTION II.

Of the variolous Fuel, or internal inherent Cause of the Small Pocks.

BUT the variolous *Primordia* or Principles, however subtil and malignant, would cease to be infectious, however admitted, did they not meet with some predisposing Quality or Particles in the Constitution, that afforded them a suitable Lodging and Nourishment for their Propagation and Increase.

If we attend here to the obvious Evidence of Facts, the Certainty of this Proposition must be abundantly evinced by our observing, that on the Inflammation subsequent to Infection, a greater or less Quantity of inflamed Humour is visibly expelled to the Surface: that on its entire Expulsion the inflammatory Symptoms subside, or considerably abate: and that on the Evaporation of such infected and infecting Humours, the individual Constitution is exempted from a repeated Infection of this specific Kind. I am sensible that some, who admit this State of the Facts, may attribute such Exemption to an Alteration effected in the Solids, and particularly in the Integuments, by the Disease. This was Dr.

DRAKE'S

DRAKE'S Conjecture, who supposed such an Enlargement of the cuticular Ducts and Pores from their Distension by it, that they could never afterwards confine the variolous *Miasmata* sufficiently to repeat their Action on the Humours : whence it should seem, as if he entertained no distinct Notion of a particular Matter in the Constitution, specifically nutritive of this Disease : or else thought it either renewable there, or not expelled by any *Crisis* of the Distemper, tho' no longer effectually impressible, from the Accident of a more yielding and open Surface.

Had we repeatedly, tho' but rarely, observed, that any former Subject of this Disease, who had past the lightest Degree of it (however contracted) with the smallest Eruption, was sometimes obnoxious to a second and internal Infection from it ; while such as had escaped through the confluent, coherent, or a large Proportion of the distinct Kind, and whose Teguments were sensibly altered by them, only escaped a Re-infection, and that without a single Exception, such Evidence must have reflected very great Probability on this *Hypothesis*. But the Contrary to this, the equal Exemption of all who have had the genuine Small Pocks, however few or favourable, being established by the Experience of some Centuries, the Fallacy of it is manifest from the same Evidence, that attests the previous Existence, and final Extirpation, of the variolous *Pabulum*. BOERHAAVE indeed expresses himself (after affirming his Surprize that neither himself nor any

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other

other was ever twice attacked with it) as if he imagined the Small Pocks had left some positive and material Quality in the Constitution, that indemnified it from a second Infection, which suggested to him the Probability of expelling the Contagion, and thence preventing its Effects, by some Specific, without Eruption : (a) but, with Submission to the Memory of so great a Master, it seems more obvious, and equally rational, to suppose, that the inherent Cause of this Disease was expelled with the external, in the separated and discharged Humours.

Some few medical Writers have asserted a second variolous Infection, that is, a sickening and internal, not a merely external, one, to which Nurses are frequently liable. BOERHAAVE says,* a Person having the distinct Sort is still liable to the confluent, but not *e contra* : and Dr. WIL-

LIS

(a) Hinc mirum est quid lateat, quod quis non iterum hoc contagio inficiatur; nam ego habui variolas octavo anno aetatis, & nunquam iterum aliquid de contagio sensi, cum tamen tot aegros tractaverim — hinc in his qui illas habuere, aliquid haerere debet, quod facit, ut in illo corpore haerere, nec variolas producere possit, & quod superet hoc venenum; ergo puto in rerum natura esse aliquid, quod illud venenum expellit seu superat, sed artis est invenire. *Prax.* Vol. 5. P. 308.

* Ibid. P. 299. — This, however qualified, considerably contradicts the just cited Assertion, to which indeed it is previous. And here we cannot omit to observe, that tho' the Matter of this *Praxis* is often not unworthy of *Boerhaave*, the Manner and Expression very generally are : since it is not only barbarous and impure, but so very frequently ungrammatical (to say nothing of the Multitude of typographical Errors) as to perplex the Sense. In Fact it is impossible it could have been printed from any MS. of his; and it has been said to have been thus published by some of his Pupils, to provoke him to a genuine Edition; though the Provocation was ineffectual.

LIS has (b) mentioned, not specified, even a third Infection. It were to be wished this learned Physician had informed us, whether this were from his own Knowledge, or from Report, in which even Writers of Merit have sometimes too lightly acquiesced. And as other eminent medical Writers, of great Experience and Veracity, have affirmed, that they never recur in the same Subject; as I never personally met with any intelligent Physician or Practitioner, who ever saw such a Re-infection, tho' he must be both the best Judge and the likeliest Subject of it himself; and never knew it to occur in any one of several hundreds I have seen in the Disease, I cannot avoid concluding, that such Reports are very generally founded in Deception. A Majority of those supposed to have had this Distemper twice (having manifestly undergone it in Town) had their first Eruption in the Country, where doubtless it is more likely to be mistaken: and as all eruptive Fevers have some common Symptoms in the previous *Apparatus*, or Attack, which abate or vanish on the *Crisis* of Eruption: as the Swine and Chicken Pocks fairly maturate, while the* Crystals fill with more dilute Contents; the Inexperience of the Practitioner, and Ignorance of the

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(b) Licet autem venenata hujus morbi semina ut plurimum semel & unica aegritudine solent diffari; quandoque tamen accidit ut, parte miasmatis relicta, bis aut ter aegri in hunc affectum inciderint. *De Febris*, P. 118. *Oper. in 4to Ed.* 1682.

* By these are not meant the crystalline Small Pocks, but a different eruptive Disease mentioned under this Name by Dr. FULLER in his *Exanthematologia*, which seems to occur but rarely. I saw it

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By-standers, in Places long unvisited by the Small Pocks, may subject them all to mistake any of the other for it. And as such other eruptive Fevers are scarcely ever mortal, tho' sometimes attended with considerable Anxiety and Sickness before Eruption, the Satisfaction of the Patient and his Friends, and the Reputation of the Practitioner, will dispose them all to acquiesce and even to exult in the supposed Cure of a perilous Disease, to which they unanimously conclude the Patient no longer exposed.

To allow the fairest Scope however to this Assertion of a repeated internal Infection, we shall not omit, that Mr. SAM. DWIGHT gives an Account, and, as it should seem, from his own Knowledge, of a Nurse who had the confluent Small Pocks twice, and died of a third Infection, from attending a Patient in a high Degree of it : and as she scarcely stirred out of his Room for three Weeks, he ascribes this most extraordinary Disease to that Circumstance. Had I personally known this Author, or been well informed of his Character, I should be better qualified how to estimate his Evidence ; which I do not chuse to reject, because his *Latin* is not very elegant ; because his tracts *de Vomitione, de Purgatione, and*

de it once however very plainly, and knew it solely by his Description, which is exact. There was great sickness, and chiefly at Stomach, before Eruption, but not the least Complaint or Fever afterwards. The Eruptions were mostly confined to the Face, pretty numerous, larger than the Small Pocks, of much quicker Growth, looked not unlike small Vesications excited by a Burn before they are cut, the Contents being very dilute, and, to the best of my Remembrance, not leaving a single Pit.

de Variolis & Morbillis contain little new or memorable, tho' he is vehemently solicitous with his Readers not to translate them ; nor, finally, because his Name is without any medical Appendage ; since Circumstances greatly more important could never undo a Fact : but my Diffidence arises from his not specifying, that he had seen the Nurse himself in the two first confluent Infections, and in the last mortal one, from the Small Pocks. He says indeed, her Face and Body were miserably scarred, * *miserrime dilaniata*, by it twice before, a Circumstance in which it was difficult to be mistaken : and tho' such an Instance having never occurred within my own Knowledge, nor any Person's of my Acquaintance, renders it not a little indigestible to myself, I refer the Reader to make his own Judgment of it, from the 59th Page of those Tracts printed here in 1722.

Besides, notwithstanding I cannot allow my own Assent to those many Assertions of Dr. CANTWELL's in his first *Lettres sur Inoculation*, by which he would persuade us, that certain Persons in *France*, most of whom he names, have had the Small Pocks from twice to seven times ; which being admitted, we might reasonably suppose them liable to it as often as others may be to a venereal Infection, or to a Paroxysm of the Ague, Gout, or Cholic : Yet I readily acknowledge, that in the last Pamphlet which Dr. Cantwell

* If this were a certain Fact, it would be entirely decisive against Dr. DRAKE's Reason, Why this Disease never re-infects the same Person.

Cantwell published against Inoculation at *Paris*, during my Residence there in 1756, among several further Instances which he gives of such repeated Infections, the very learned and polite Dr. SENAC selected the third Example *Cantwell* mentions, which Patient the Dr. assured me he had seen, and really judged his Case to be a second variolous Infection. We submit this truly respectable Authority to our Readers, with this further Acknowledgement, that the *French* seem more generally to imagine the same Person may be infected again with the Small Pocks, than we can find Reason for admitting in this Island; notwithstanding SIDOBRE's reckoning us amongst these Nations, whom he supposes more liable to such repeated Infections, than the Inhabitants of the warmer Regions of *Europe*. On the other Hand it is but equally impartial to add, that CHESNEAU, an eminent *French* Physician, ascribes the imaginary Repetition of the Small Pocks in *France* to their Doctors and Patients often mistaking some other febrile Eruption for it. And this Dr. TYSSOT, an eminent Physician of *Lausanne* in *Switzerland*, informs us, was also the Judgment of JACKSON and SCARDONA two *Italian* Physicians.

Since the first Edition of this Treatise, we find such Disputes concerning the moral and medical Fitness and Unfitness of Inoculation have, naturally enough, arisen on the Continent, as our much longer Experience of it has happily terminated in its Favour here. This, at no extremely distant Period, must with great Probability,

lity, be the Case there too; since Time, that sure, but sometimes slow, Establisher of Truth, seems gradually advancing to the Demolition of still more important Delusions in *Europe*, than a bigotted Opposition to this salutary and saving Practice. On this very Point then of a repeated Small Pocks, we find that the learned Dr. TYSSOT, in his Answer (1759) to the *Questions concerning Inoculation*, by the learned Dr. HAEN of *Vienna*, cites† above twenty respectable Authors, to prove, that the Small Pocks never, or scarcely ever, re-infect the same Person. In reply to this Dr. HAEN, in his *Refutation de L'Inoculation* (1759) * cites eighteen Authors, some of them the very same with Dr. TYSSOT, to prove the Small Pocks frequently re-infecting the same Subject. And tho' many of these last may seem of equal Authority with the former, there are others that read more like physical Legends or Romances than Histories, and require a most extraordinary Credulity to digest them. Such for Instance is that from DECKER, who affirms he knew a Girl, that having had the Small Pocks five Times, became more and more deformed; so that at length she dare not shew herself; and was at last carried off by a bad sort from the sixth Infection. He had just premised another strange Case, wherein the first variolous Infection had so deformed a young Girl, that she was commonly termed, *The Antidote to Love*. But when she arrived to the Age of Fifty, her Appearance was

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† *Lettre a Mr. de Haen* P. 91. to 96.

* P. 4. to 20.

so greatly improved by a second Small Pocks, that he supposed all Ladies who had been disfigured by it, would gladly consent to have it a second Time, on Condition of their Beauty being equally restored by it. Dr. HAEN also refers to FERNELIUS' citing *Borel* for the Case of a Woman at *Boulogne*, who having had the Small Pocks seven Times, was killed by the eighth at the Age of one hundred and eighteen. However, were we to suppose, upon the whole, the Testimonies and Opinions produced *pro* and *con* in this Dispute to be exactly of equal Weight, they could only amount to none, by strictly counterballancing, or even effacing, each other : this must consequently leave us to be determined by our own Experience on this Point, which will manifestly declare for, the genuine, the frequently mortal, Small Pocks, being very rarely indeed, if ever, repeated on the same Subject, in the *British* Islands. And if, according to the common Axiom, *Rara non sunt artis*, such unusual Appearances are not strictly the Objects of Physic, we may well conclude of such as occur next to never — *Perrara nequam sunt*. To form some Supputation however of this possible Deviation, or sporting as it were, of Nature in this Respect, from her most general Rules in the Constitution of human Bodies, let us admit the Case recited from Mr *Dwight*, that of *Cantwell's* verified by Dr. SENAC, and the four Cases related by DIEMERBROECK (which he terms so many astonishing unaccountable Instances) to have been genuine variolous Re-infections ;

tions ; we may rationally infer, that not more than one in ten Thousand, instead of the Million we formerly supposed, is liable to a repeated Visitation from this Disease. Hence it will follow, that such very rare Constitutions only can be re-infected after an efficacious Inoculation, of which Miss TIMONI must have been one, who is proved by Dr. HAEN, on the accurate Investigation and Testimony of Mr. MACKENZIE,* to have died of a natural Infection, caught from her inoculated Brother and Sister, twenty four Years after that she received by Inoculation at the Age of six Months. We leave this extraordinary Case to have its just Weight, and no more, in the Scale against Inoculation : while Dr. HAEN unreasonably thinks it sufficient entirely to abolish the Practice.

Admitting therefore, under such just Restrictions, the *possible* Contingence of a second Decumbiture from this Disease ; if we find it too difficult to conceive a partial Consumption of its *Pabulum* at different Periods, (at which we may be told, ‘ certain Parts of it become sufficiently ripe to be impregnated’) we must attribute it to a new Creation, as it were, of that *Pabulum*, which was probably coeval with the Patients very Dawn of Existence ; was extended afterwards thro’ his extending Growth ; and which had been since expelled from his Habit, by the Operation of its specific and corresponding *Virus* ; a Circumstance that strongly indicates how very rare such a Contingence must be. Dr. WILLIS.

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* See Haen's *Refutation de L'Inoculation*, P. 53. to 58, &c.

indeed supposes, in the Passage already cited, that the whole *contagious Principles may not be consumed by a single Disease, but suffice for a second and even a third : but surely it appears more easy to conceive, more rational to apprehend, that a plentiful Reception of them into sufficient Fuel would kindle at once to a very dangerous or fatal Explosion. I should as naturally look for this Effect in the commixed and circulating Blood, as for the Deflagration of every Grain of Gunpowder, from the Contact of Fire with any Part of an uninterrupted Train of it, however contorted; tho' by no Means as instantaneous a one. And this appears, beyond all fair Dispute, by far the most general Conduct of Nature in this Disease.

I have been the more particular on this contingent Renovation of the *Fomes*, which a repeated variolous Infection supposes, as the latter has been more vehemently affirmed, since the Use of Inoculation, by its Opponents, who have particularly confined such supposed Re-infection to the inoculated : while its most rational Advocates conclude an efficacious Inoculation just equivalently preservative with the natural Disease. But of the Probability and Proof of this more professedly in a subsequent Section.

Some Physicians have judged this internal predisposing Cause of the Disease more indispensable to

* This he terms *Miasma* here, which we chuse to refer rather to the infecting Principle than to the infected Particles, tho' the variolous *Pus* includes both. It may be queried however, whether he did not intend the latter.

to its Existence, than the external procatarctic one, the Union of which constitutes its immediate Cause. Thus WILLIS affirms, (a) that Persons have been seized with it after a Debauch, or very violent Exercise, when no other for a considerable Distance round about had been of a long Time infected. This looks at first indeed, as if there might be an effectual * *Succedaneum* to variolous Contagion (if that could be a *Desideratum* in Physic) while a proper *Substratum*, or Receptacle, for it seems as indispensable to its Operation and Increase, as the Ventricle to that of an Emetic, or the *Ovarium* to Conception. But notwithstanding we can readily conceive Bodies, thus circumstanced, to be peculiarly susceptible, and as it were attractive, of this Contagion; yet there is the less Certainty of this supposed *Succedaneum* to it, as the Distemper has never been known to occur in the hottest Parts of *America*, under the most inflaming Circumstances, without the manifest Importation of it: And with Regard to the *British* Islands, the Accidents by which Contagion is transferred are often untraceable

(a) Novi quosdam a crapula, aut exercitio immodico in hunc morbum incidisse, cum praeterea nemo circumcirca in tota regione aegrotavit; nimirum sine prævio miasmate latentia hujus mali semina, a nimio sanguinis fervore commota et invicem associata agglomerantur, facileque totam inquinant sanguinis massam, & fermento suo inficiunt. *De Febris* P. 118.

* Dr. Fuller has a remarkable Instance of a Person, who having taken a Drachm of Gamboge from an ignorant Prescriber, after its violent Operation, fell into a Fever which terminated in the Small Pocks, at a Time, when it was not in all that Country, and when he had been no where else to take the Infection. *Exanthemat.* P. 188.

able. The learned and ingenious WERLHOF informs us, (1) from his own Knowledge, that a Girl, who had received a Letter from her Brother, then at some considerable Distance, infected with the Small Pocks, sickened some Days after at *Hanover*, and infected others, when the Disease had not been there for some Years before. Now as *London* is never without the Seeds of this Contagion, and often greatly abounds with them, gentle Winds may transmit the variolated Part of our Atmosphere to some Distance ; tho' we know at present it has never been extended in that Manner across the Atlantic Ocean.

The variolous *Primordia* and *Pabulum* then being certainly distinct Parts of Matter, tho' so similar, as to be strongly disposed to unite, to the Increase of the former ; as often as we are said to have the Seeds of the Small Pocks in us, before actual Infection, it can only be true that they are virtually in us, as Grain may be supposed to exist in the unsown, but fruitful Field, to which the human Body, before Infection, corresponds here : while the animal Heat and Humours have a considerable Analogy with the elementary Fire and Moisture, that concur to the Growth and Increase of the Grain, when the Seeds are conveyed into the Soil. I need scarcely observe to the physiological Reader here, that when I sometimes call the variolous Principle *Seeds*, or the variolous *Pus* a *Ferment*, I do not literally suppose these invisible Atoms either Seeds separately,

(1) De variol. & anthrac. Not. 36. ad P. 16, 17.

separately, or an animal Yeast compoundedly, nor even that they are not such, as I am truly ignorant of their intimate Essence : but that I only use these Metaphors to illustrate their Obscurity a little, by referring to certain analogous Processes and *Phænomena* in Nature, which seem not quite so much concealed from us.

But after our continual Assumption, with many other Physicians, of the two Causes concurring to this Disease, it is but ingenuous to confess, that some others have mentioned no specific *Fomes* of it ; as the learned and elegant FERNELIUS considers a particular Disposition of the Air as its sole Cause, and consents to its second and third Infection of the same Subject. To such considerable Authority however, it may be sufficient to oppose that of long Experience, and to answer, that, if it were so in his Time, it is altered since, as *Moliere's* Doctor says of the commuted Situation of the *Viscera* since the Time of HIPPOCRATES : neither is it any Injustice to the Merit of FERNELIUS, to suppose this Disease better understood since SYDENHAM than before. But an ingenious Cotemporary, Dr. HAHN, goes still farther in his *Ratio Variolarum* printed at *Wratislaw* 1751 : in which, without denying the Existence of this Contagion and *Fomes* in direct Terms, he is intrepid enough to assert, in Effect, their being insignificant and unnecessary to the Production of the Disease. His bold System briefly is, ‘ That the Small Pocks is not strictly a Distemper, but as natural, and even as necessary, an Evolution of the

the Body, from the actual Extension and Multiplication of the extreme capillary and superficial Arteries, as that of the Extrusion of the Teeth at their different Periods; of the Appearance of a particular Pilosity; of the Eruption of the *Menstrua* and other Tokens of Puberty, at their ordinary Terms, or of any other corporeal Evolution.' Had the learned Author intended this *Hypothesis* as a medical *lusus ingenii*, he had undoubtedly fulfilled the Purpose of an agreeable Amusement to his medical Readers; the Analogy between arborescent and animal Vegetation being very curiously preserved; in which the Pustules are considered as the Fruit or Berry extruded from the new Shoots, and appended to them by *Pedunculi*, or Stalks, passing thro' the Integuments. But as he sets out with the Air of a serious Conviction of its Reality, we are at a Loss to reconcile it with the Author's Reputation and Knowledge in his Profession; and find it hard to conceive, how he could acquiesce in his own Evasions of the Objections to his *Hypothesis*; and particularly to the insuperable Difficulties it is clogged with, from the indisputable Facts of natural and artificial Infection: where we may observe by the Way, that the latter has certainly conduced to give us a more distinct Idea of this Disease, than we had before our Acquaintance with Inoculation.

Taking this peculiar internal Cause then for granted, from the most obvious Reflection on plain Appearances, and their constant Events, we shall endeavour to consider its Quality, and even
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its Residence ; Circumstances not altogether as manifest as its Existence. With Regard to its Residence, I had not the least Thought of confining it to any Spot or Organ of the Body, till I observed, that the elder HOFFMAN was for fixing it, not in the Blood or Humours, but in a virulent Fluid contained in some obstructed Tubes of the spinal Marrow, from the Spine and the Head being first formed in the *Uterus*. We shall not suggest any Solecism here, in this Physician's supposing such a nervous Tubulosity as Anatomy and Microscopes * are incapable of discovering ; since a dissected and inspected Nerve may be very insufficient to give us an adequate Idea of its vital State, its Action, † its Permeability, and still less of its Contents ; and the nervous Cavities being once admitted, their possible Obstruction will be a Consequence. But were we to grant this specific Situation of the variolous *Latex* or Source, (which Dr. HAHN terms a divine Detection of the true Mystery of the Small Pocks) must we not also grant, that as many as were formed without this nervous Obstruction, are necessarily void of the *Latex*, which is contained in no other Part, and are consequently exempt from the Disease ? And how will this specific Situation of a variolous *Latex* quadrate with the System of variolous Evolution, which the Doctor supposes

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* I think, however, upon Recollection, *Leuwenhoek* asserts some very exquisite Pores or Passages, discoverable by the greatest Magnifier, in the spinal Marrow of an Ox just killed, and directly examined.

† See *Van Helmont*, P. 364.

the meer Result of that necessary Extension and Increase of the capillary Arteries, that should be common to the whole Species, if not to the whole animal Creation, at some Term of their Accretion? Besides, were this Discovery of the great HOFFMAN's certain and real, might he not obviously deduce it *a posteriori*, from the violent *Lumbago* so frequently previous to the confluent Small Pocks, without any supernatural Penetration or Assistance? For my own Part, I find it easier to subscribe to their Opinion, who suppose it especially lodged in the circulating Blood, where it may probably be more concentrated or diffused, in Proportion to its different Quantity and Energy in different Subjects.

Dr. VIOLANTE, whose *Latin* Treatise on the Small Pocks and Measles was published at *Dresden* in 1750, has, without the least Hesitation, and as little Proof or Argument, affirmed the Humour found in the narrow Cavities of the *Capsulæ atrabiles* or renal Glands (which Humour KEIL calls blackish, but HEISTER brownish) to be the internal Cause and Nourishment of the Small Pocks, and of the Measles too. Hence the Use of these Glands, hitherto concealed from Physicians and Anatomists, would be to qualify their Owners to receive the external Causes of the Small Pocks and Measles, and to feed and multiply them by this Fluid; the Use of which, before this Discovery, was as obscure, as that of its containing Glands, whose excretory Ducts are yet undiscovered. But after the closest Atten-
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tion to this Novelty, I cannot imagine these Glands with their Fluid a more probable Receptacle and Fuel for the Small Pocks, than HOFFMAN's obstructed Tubes in the spinal Marrow with their supposed variolous Fluid. For as these renal Glands in the Fœtus are always nearly as large as the Kidneys, and often larger; while in Adults they do not ordinarily exceed the Size of a *nux vomica*, and the Decrease of their Size is doubtless very gradual; it seems natural to suppose, that the different Quantities they secrete from the arterial Blood in the Infant and Adult, must be in some Proportion to their different Size and Cavities, in these opposite Subjects: Whence this Humour abounding more in the Child, proportionally, than in the Man, it must follow, from this Gentleman's Discovery, that the former would be subject to a greater Number of variolous Pustules, with all their aggravating Circumstances, than the latter; the very Reverse of which is by much the more general Event. Besides, this same atrabilious Humour, as VIOLANTE supposes it (though KEIL denies the Existence of any atrabilious Humour) gives us a Notion of something intensely bitter, but HEISTER affirms it is of a sweetish Taste. Indeed we are surprized, upon the whole, that this *Neapolitan* Physician to the King of *Poland* did not consider these Circumstances as some Objections to his Opinion of these glandular *Viscera* and their Contents: Since they would incline us to imagine this Humour rather opposite to the Small Pocks, than genera-

tive of them, as he terms it. But were we even to admit its being the particular, or principal, Matter of their Increase and Nutriment, it would seem that those Glands which separate so much of it from Infants, and so little, sometimes none at all of it, from Men, was more likely to be a salutary Contrivance of Nature, for preserving the Blood of Children in a more depurated State, in order to lessen their Danger from this Infection at their tender and delicate Stage of Life, than a Receptacle to cherish and augment these Diseases in them; which Opinion would also be countenanced from the greater Number of Pustules, and more violent Symptoms, in those Bodies, in which this Secretion was greatly diminished, or had totally ceased. A Discovery of the excretory Ducts of these Glands had been a truly valuable one, as it would have led to a Knowledge of their real Use, and that of their Contents. But as the Case now stands, it seems not more clear, that they are the Receptacle and Seed-bed of the Small Pocks, &c. than that the *nigrum Pigmentum* of the *Choroïdes* should be their Nutriment, and the very minute Glands which separate it, be their Receptacle. We acknowledge however, that this Conceit has given us a little Curiosity to inspect, or to be informed of, the State of the renal Glands, in Subjects dying of the Small Pocks: And we also confess, this Author has rather taken this Use of these Parts for granted, than assumed any great Merit from discovering it.

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Such as have concluded some *Labes* or Impurity of the menstrual Blood, to be the internal Cause of the Small Pocks, have also concluded a peculiar Disposition of the Air, or any inflaming Accident,* sufficient to effect the morbid Explanation of it, without any peculiar Contagion. Many Moderns, agreeing, in this Respect, with the *Arabian* Writers, have considered the Disease as an Effervescence and Despumation of the Blood, necessary to its Defæcation, and compared it to the Transition of Must into Wine. Undoubtedly, as human Blood, it is the *Substratum* or Soil of this Malady for once; tho' not from any peculiar Malignity of the menstrual Blood, which it is absurd to suppose the plastic Wisdom of Nature would malignantly employ, for the Constitution of her noblest sublunary Creature: And which, if she did, since the Effect must be as extensive as the Cause, must inevitably subject the whole Species, who are similarly constituted from it, to an indiscriminate and early Attack of the Small Pocks without Contagion, a Consequence manifestly contrary to irrefragable Experience. Yet from such a Notion it is not improbable, that the *Chinese* Physicians recommend that peculiar Preservative from this Disease, mentioned by DIGBY and by HARRIS; which is no more than squeezing the Blood from the Navel-string of the Infant

* This naturally reminds me of an odd Conceit in a Gentlewoman here, who was very positive that her Son, of six or seven Years old, caught the Small Pocks, which had been favourable, by a Fall thro' one Story of a House then building in the Neighbourhood.

fant outwards, before the Ligature is made. These Physicians are highly commended for their Abilities by some of the historical Missionaries, and particularly for their extraordinary, and, to me incredible, Prognostics from the Pulse: But certainly it argues a gross Ignorance of that Circulation on which the Pulse depends, to suppose, that all the variolable Particles of the Infant's Blood should be confined to the Conduit of the umbilical Chord.

As we shall venture then to suppose this congenial *Fomes* pretty equably diffused through the Blood, so we think it likely that it is not imprefible by any different Contagion, and very rarely, if ever, excited by the Causes or Process of other Distempers: Since notwithstanding we cannot be certain, that the more humoral Part of it may not accidentally co-operate in some febrile Cases, it has never been known that any acute or chronical Disease terminated in this, when the Patient has been certainly secure from variolous* Contagion. Neither does it appear to be singly morbidic, as Experience abundantly proves, that even a mortal Quantity of it has remained very indolently in many remarkably healthy Constitutions, for many Years, before its fatal Conjunction with the external Cause. Now, though to investigate, with any considerable Precision, what *the whole* of this *Fomes* is, be a Difficulty little inferior to the Defiguration of the invisible Seeds of its corresponding Contagion; yet Experience

* See however Note p. 45.

perience and Reflexion contribute to suggest some probable Conjectures, concerning those particular Principles in our Composition, which are most susceptible, and further constitutive, of those Seeds. *Boerhaave* specifies the (1) *Salino-oleose Temperament*, as disposed to the severest Degrees of the Small Pocks. Thus very bilious Constitutions, *cæteris paribus*, have been often observed to be more violently affected by it; and Chemistry instructs us, that Bile has a considerable Proportion of lixivious, and some volatile Salt and Oil, in its Composition. We are not a little obliged to the late ingenious and indefatigable Dr. LANGRISH, for his *Analysis* of the human Blood, and Urine in a healthy, and in an * inflammatory State; by which we observe, that the volatile Salts and Oil were considerably increased in the latter State, and the Lymph somewhat abated; and that in Proportion to the Mitigation of the Symptoms, the Urine was more impregnated with those *salino-volatile* and sulphureous Parts. Now if we suppose (which is not improbable) that the variolous *Pabulum* chiefly consists of those most active and inflammable Principles, the Supposition will be countenanced not a little, by the general Observation of Children's (whose dilute, simple, acescent Food may be deemed to furnish but a small Proportion of these high Principles) being infected with the lighter Degrees of
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(1) Aph. 1397.

* Mr. *Boyle* acknowledges the human Blood, which he analysed, was taken only from healthy Persons, who bled from Custom.

this Disease ; though undoubtedly other Circumstances may concur to this. It will be further corroborated too from our observing, that among Adults, those of a lax Fibre and moist Habit, and such as have been rendered pale and low by previous Hæmorrhages and Intermittents (provided these last have left no Obstructions of the *Viscera*) are generally visited with lighter various Symptoms, than others who are remarkably vigorous and plethoric ; or if thin, at the same Time, fallow, dry and rigid : Since we find from those useful *Analyses*, that the sound Urine, which may be chiefly separated from the *Serum* (though probably charged with some recrementitious Abrasions from the Fibres and fibrous *Cruor*) contained almost a third Part less volatile Salt than the Blood taken altogether ; though full four Times as much fixt Salt, which Dr. LANGRISH rationally concludes, from its sensible Resemblance to * Sea Salt, to depend chiefly on that Proportion of it usually added to our Food.

The same Supposition will obviously account too for the severer Infections, that happen after indulging on high Meats and Sauces, and rich strong Liquors, which may be considered as supplying an accessory Nourishment to the Disease ; or after heating much by violent Exercise, or long Insolation, which tend to exalt that already in it ; while they produce an extraordinary and
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* This was established beyond Doubt, by Mr. Boyle's dissolving Leaf Gold immediately in *Aqua fortis* without Heat, on adding some Grains of the fixed Salt of human Blood to the Menstruum. Vol. IV. P. 171.

unwholesome Waste of the Lymph so necessary to its Dilution. And here we could have wished, in order to a better Estimation of what Proportion of the palpable variolous *Fomes* the *Serum* in sound and in inflamed Bodies may contain, that the Doctor had further obliged us with its chemical *Analysis* distinct from the *Crassamentum*, and before it became extravasated and excrementitious as Urine; which, from a sensible Difference in Smell and Taste, must be loaded with a greater Proportion both of sulphureous and saline Parts than the circulating *Serum*: one Purpose of this Excretion very probably being to prevent an insalutary Accumulation of these Principles in the Mass, and to make room for a further Dilution and Attemperation of it. It seems rational however to infer, from the smaller Quantity of them even in the excrementitious *Serum*, that in its ordinary State it is pregnant with a less Proportion of this *Fomes* than the red Globules; which from their greater Surface, and more solid, tho' yielding and fibrous Contexture, seem to constitute a fitter Soil for the Reception, as well as Nourishment, of the Seeds of this Contagion. The more simple and aqueous Part of the *Serum* may not improbably attemper and even restrain their irritating Effects; but the more it is inclined to a high alcallescent, bilious Dyscrasy, it must be the less adapted to such a Purpose.

But further, as the Solids and Fluids are composed of the same Principles, it may be asked, whether the fleshy and vascular, the nervous, and

even bony Fibres, contain any Portion of this *Fomes*? And this the rather, as Dr. BUTINI, in his *Traité de la petite Verole*, &c. (1) asserts it to reside in the Solids, from its frequent long Dormancy in the Subject. But if the Susception of the variolous *Miasma* appears constantly necessary to excite and actuate it, the Term of its Dormancy, or Inaction, can suggest but little as to its precise Residence. However, as the Solids were at first in a State of Fluidity, and continue to be nourished and repaired by the Blood, it seems reasonable to infer, that they may contain some Share of it. But as the common Principles of both vary in their Proportions, and very manifestly in their Modification and Consistence, before their Separation by Fire, it seems equally reasonable to suppose too, that in the lighter and even middling Degrees of the Small Pocks, those Particles, now contributing to constitute the Solids, which, in their fluid State, were assimilable by the contagious Cause, are no longer so in their more fixed and resisting Form. Yet must we admit, that even in a sound Condition of the human System, there is an incessant and reciprocal Commutation of the same Particles into a fluid and solid Consistence. Our Food must be reduced to a considerable Degree of Fluidity to become Aliment; which must in Part be consolidated afterwards, to be effectually applied to the constant necessary Repair of our Machine; and the abraded Particles of our Solids must be attenuated to an

an exquisite Fluidity, to be expelled thro' the invisible Outlets of our Surface. In some morbid Cases the Fluids have been found to concrete, the Vessels to ossify; the very Brain has appeared (1) partly bony, partly lapidescent, and a Piece of it sawed off and infused in Spirit of Salt, considerably diluted, became nearly as flexible as Whale-bone. This had been a Cow's Brain, was sent to the Royal Society, and seen by many here. In others the Fibres colligate and melt, and the (2) Bones have grown soft and flexible. And thus here, from the intimate Relation and Intercourse between the nourished and nourishing Parts, if the latter abound excessively with this Fuel, the Consequence may not only prove an extreme and fatal Attrition of the red Globules, whence the Purples, or bleeding Pocks, with all their dreadful irremediable Symptoms; but even an erosive Colligation of the Solids may supervene to the Production of Gangrenes: and if a Patient in this horrid Situation could exist long enough for it, a *Caries* of the Bones might ensue.

Thus much may perhaps but too prolixly suffice to infuse some Idea of the humoral Principle and Fuel of this Disease. But besides this it must be confessed, there is something much less investigable in the human System, some impalpable Essence or Quality, the Expulsion or Extinction of which is the especial Cause of our Privilege from a second variolous Attack. Common Sense

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(1) Dr. *Simson's* Inquiry, P. 259, &c.(2) *Ephemer. German.*

sufficiently inculcates, that whatever present Alteration this Disease may effect in the Proportions of those Principles compounding the Blood, the Principles themselves must, in some Degree, continue; and in a short Time most probably resume their wonted Proportions; since a material Defect of the active Principles would as certainly be morbidic as their Excess. A Recourse to the usual Way of living, the same Tone and Action of the Solids, the same concoctive Powers, and the same Strainers must elaborate Blood of the same *Crafsis* and Temperature. Yet all this Experience demonstrates insufficient to regenerate the same Disease in the once infected Subject. Is the material *Fomes* then but the principal Vehicle of this connate *Vapour* perhaps, which, like the Contagion that impregnates it, eludes all Investigation? Is the volatile *Fomes* that inscrutable Essence, which specifically distinguishes the human Blood from that of all Animals, which affords the same Principles on a chemical *Analysis*, and yet is not the Subject of this and some other Contagions? Has it any considerable Analogy with the Air that is fixed and quiescent for a Time in all our containing Parts; and is it inflamed or rendered elastic by the Spark of Contagion? Is it, however inconceivably, concentered in the *Ovum*, or commixed with that volatile Spirit of the *Semen*, which probably pierces and fecundates it? and is it attracted, during the Formation of the *Fætus*, by the most active Principles of its Fluids? Or is it only a meer Quality, depending on such a peculiar

culiar Mode or Degree of Cohesion in the Mass, as it never exactly resumes again, after its having been once unravelled by this Disease? After the utmost Suggestions I must be content, methinks, to treasure up its explicite Nature among my numerous *Incognita* : and apprehend a much better Penetration than mine may safely presume with the learned WERLHOF, (1) that it will never be satisfactorily explained.

With Regard then to the humoral Part of the *Fomes*, a sagacious Physician may generally form a reasonable Estimation of its Quantity in different Habits and Circumstances, and frequently lessen and attemper it by proper Methods. But in Respect to the Portion and Energy of this evanescent inscrutable Part of it, the most judicious may be mistaken; as a fatal Infection has sometimes occurred in Subjects, whose Complexion, Age and Temperament seemed happily circumstanced for the Small Pocks. It may be affirmed however, that this happens but rarely, as the humoral *Fomes* seems as indispensable to the Disease as the more latent one ; and it is reasonable to suppose they are generally rather proportional.

But whatever this Fuel may consist of in the Aggregate, the whole, we are certain it abounds considerably more in some Constitutions than in others : Children at the Breast and the *Fætus* have died from its Excess : some few in the utmost Vigour of their Lives have had a very gentle Disease from its Paucity and Mildness ; and

WERLHOF

(1) De variol. P. 20.

WERLHOF informs us, (a) from his own Knowledge, of a *German* Peasant, who past thro' it with great Facility at the Age of eighty.

Could we then, without a violent Consequence, wholly expell or eradicate this Fuel from the Habit before Contagion, it must be just equivalent to an effectual Antidote against it. But tho' the Divine Omnipotence has not permitted us thus entirely to elude those Shafts that fly by Day and Night, His infinite Compassion has indulged Mankind a different Method of having them pervade our Bodies with very little Trouble, comparatively speaking, and still less Fatality. And indeed it is no small Happiness that we can form, upon the whole, a clearer Idea of this *Fomes* which we contain, and can, in some Measure, diminish and attemper; than of the external Principle, whose admitted Quantity we cannot ascertain, by natural Infection at least; and whose Quality we cannot perhaps alter at all, or not, without preventing its indemnifying Operation. It seems further probable, that the Quantity and Energy of this inherent Principle most essentially constitutes the Degree and Character of the Disease: For tho' different Constitutions of that Air we continually imbibe, may be disposed more or less to propagate, or to enforce, the Operation of this Contagion, as the State of our Solids and Fluids may be variously affect-

(a) Ut nuperrime observavi in rustico octuagenario, qui toto fere vita sanissimus variolas distinctas egregie in ista aetate exsuperavit. *De variol.* P. 21.

affected by them ; yet Inoculation has abundantly demonstrated, that * an insensible Quantity of the very same infectious Matter effects a large Assimilation in some Bodies, while a ten-fold Quantity has not produced the tenth Part in others. Where this *Fomes* then is naturally small and mild, the variolous *Primordia* must be assisted by some very malignant Quality in the reigning † Constitution ; or the Disease must have been treated very absurdly, to produce a violent and anomalous Small Pocks. Where it is very copious and energetic, the mildest Season and simplest Contagion can scarcely fail to excite a severe Degree in the natural Way. We may well then recommend a careful and rational Regulation of this Principle to every Inoculator.

Hoc saltem minuas, hoc tu compesce catena.

And if Inoculation afforded us but this single Advantage, it must certainly be a sufficient Enforcement of the Practice.

As a Matter of some Curiosity, we shall close this Section with observing, that the Circumstances of a specifically morbid *Pabulum*, and the Kindling and compleat Extinction of it by a specific Contagion, seem almost peculiar to this Disease

* See Sect. VII.

† This seems to have occurred here in 1759, when the Small Pocks were more than usually fatal ; and Inoculation was somewhat less successful than usual, very probably from the same Constitution. I have heard of about 10 or 12 miscarrying under it, and I then lost a Negro, whom I inoculated, belonging to Mr. Stead in London. He was about 20 Years old.

Disease and the * Measles, since we have the best Assurances that Persons have been a second and third Time attacked with the Plague, and twice even in the same Season. We have seen an acute Fever however on the Continent of *America* in 1732,† which, under a simple rational Treatment, destroyed about the same Proportion with the Small Pocks, one in six or seven, taken all together; and we are positive that, on a second Visitation from it in 1739, not one Person who had the former was affected with this, and very few others escaped it. The Symptoms in both were entirely similar, tho' its different Treatment the last Time considerably aggravated them, and raised the Mortality to that of a severe confluent Pock, which some have thought to equal the Havock of the Plague. If any other acute epidemical Fevers observe the same Distinction, it seems to have been little adverted to by medical Writers; and this may be partly referred perhaps to that Disproportion between the Brevity of Life, and the Extent of medical Disquisition, which the contemplative HIPPOCRATES (a) hints at, as one Cause of the Defect of the Art.

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* Tho' this may be the Case too of the Swine and Chicken Pocks, and a few other febrile Eruptions, which never return again, we scarcely consider them as Diseases, since Physicians are very seldom called in to them. The Whooping Cough, frequently epidemic amongst Children, to the best of my Recollection, never visits the same Patient a second Time.

† By all Accounts it had been there 17 Years before; all the Survivors who then had it, escaping it in 1732, and 1739. I had that of 1732.

(a) Ὁ βίος βραχὺς ἢ ὁ τέχνη μακρὴ. L. 1. Aph. 1.



SECTION III.

Of the Progress and Operation of the Contagion.

THE Coalition of the variolous *Effluvia* and *Fomes* immediately constituting this Disease, the Title of this Section might naturally incline the Reader to expect a Description of its ordinary Symptoms and Progression. But this having been most happily effected by the great SYDENHAM; being transcribed from him by some, with very little Improvement, and by others, not without Depravation, a Repitition of it here must prove the *Crambe centies cocta*, and even disgust a discerning, medical Reader. We shall therefore rather invite such to an attentive Survey of the Progress of this Contagion through the Habit, in the most usual Modes of its accidental and voluntary Admission; and thence surmise, at least, its earliest Impressions on the Blood, before they are considerable enough to manifest the Disease. Now tho' our Knowledge of the Circulation, and a tolerable Acquaintance with the animal Oeconomy, may furnish some Idea of its Reception and Rout, its Manner of

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Operation can only be conjectured from its sensible Effects.

Suppose the variolous *Effluvia* then, in the most usual Rout of accidental Infection, conveyed into the Stomach with the *Saliva* ; it has not been known, from its immediate Effects, to be a Poison *per se* affecting the * Membranes : it excites no Irritation there, nor was the Imbiber sensible of its affecting the Organ of Taste. The uncertain Quantity imbibed was, however, comparatively small ; it had not yet arrived at the Soil for its Propagation, which seems to be the Blood itself, and not the *Saliva* secreted from it. We cannot suppose the Warmth of the Stomach likely to extinguish its Activity. From the peristaltic Motion, and very gradual *Systole*, of this Organ, it will be detruded with some of its Contents into the *Duodenum*, where it meets with the Bile and pancreatic Juice ; the former of which being peculiarly impregnated with the active and stimulating Principles of the Blood, will scarcely lessen its Virofity. But as yet it has only met with fuch a Portion of this Fluid, as is insensibly effused into the alimentary Tube to assist in Chylification, and for other oeconomical Purposes : and now being in its Progress blended with the Chyle, it may probably produce some Variation in its Texture, according to the Quality of its Contents, which suggests the Prudence of a due Regard to the Diet of Persons in the Way of Infection. Being admitted, with the new Chyle

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* See P. 28.

containing it, within those exquisitely minute Orifices of the Lacteals, which are said to elude the Inspection of the best Microscopes, we will suppose it to receive but little Addition or Exaltation from the Lymph (in its simplest healthy State) with which the Chyle is diluted before its Arrival at the thoracic Duct; thro' which gradually rising it is instilled with its involving Chyle into the subclavian Vein; and from thence by a short Rout conveyed thro' the descending *Cava* to the right Auricle and Ventricle of the Heart. And now being in the Way of Diffusion thro' the Mass, if it finds a considerable Quantity of constitutional, or adventitious Fuel for its Increase, we may well exclaim,

Heu quantas acies stragemque ciebit !

But it may be observed, this is not often very hastily effected, as these morbid Seeds, like those of Vegetables, generally take some Term to remain in the Soil before they germinate, and attract that Nourishment, which is to multiply them more or less.

If we suppose the Infection wholly conveyed with the Air into the *Trachea*, the Windpipe, it will be applied to the pulmonary Vesicles, admitted into the Blood with the blended Air, and thence be conveyed to the left Ventricle of the Heart by the pulmonary Vein, a much shorter Rout than that by the alimentary and chyliferous Passages : whence an earlier Assimilation might be expected, supposing the Poison admitted thro' the *Oesophagus*

gas to receive no additional Activity from the Heat of the Stomach and Intestines. As the Moment of receiving the Contagion by the Breath is seldom adverted to, we cannot say, whether it is sufficiently irritative to excite a Cough, by its immediate Contact with the Membrane of the *Trachea*, or the Vesicles, which are less defended by a *Mucus* than the Stomach and Intestines. Were it capable of producing any such Inflammation on the unwounded internal Surface of the Lungs, as it does on the incised *Cutis*, we might too reasonably apprehend a bad Event from it in such a vital and inquiscent Organ. But we had already presumed it was not a Poison immediately affecting the Membranes; since their frequent Irritations, on the actual Exertion of the Disease, some Days after Infection, are most probably owing to the heterogeneous *Crafsis* of the variolated Blood, the different Secretions from which will be correspondently irritative.

Were we to suppose the Infection received by the Smell so entirely, that no Part of it descended either into the *Oesophagus* or *Trachea*; tho' it has a particular Scent, we do not find it irritative enough to excite sneezing; nor so pungent as the invisible *Effluvia* of volatile Spirits or Salts. The Fibres of the olfactory Nerves are nevertheless evidently affected: yet since we can conceive, that the inforbing Vessels in *Sneider's* Membrane may convey the Contagion to the Blood, let us suppose it so for the present, to distinguish humoral from nervous Infection, for which there

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is probably some practical Reason. As it will be gradually diffused hence thro' the Jugulars and Subclavians to the *Cava* and the Heart, there may perhaps be little particular in the Infection, merely of the Blood, this Way ; except that the first Impression, being made on this very sensible Membrane, may produce a more than usual Proportion of Pustules here, which must be troublesome at least in the Course of the Disease, from their affecting Respiration, and Deglutition or Swallowing, in Consequence.

As Inoculation may justly be supposed the most immediate and simple Manner of infecting the Blood, we observe, that in order to it, a very slight and superficial Wound or two is made, which is irritative of itself, as some nervous Fibres are divided and exposed. The Matter infused coming into immediate Contact with the Orifices of the divided capillary Vessels and their Contents, by first altering and affecting these, must make the little Discharge irritate the Orifice more, and dispose it to a more ulcerated State, than the unaltered Fluids would in such a simple, superficial Wound. This Circumstance will naturally be attractive of a more than usual Afflux of Humours to the infected and unresisting Part : and accordingly we observe a little Heat and Itching about the Incisions, considerably before any other Complaint. The Poison is, or should be, conveyed into the most superficial Capillaries, where the Circulation is slowest ; the Number of circulating Globules comparatively few ; their Size prob-
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bably comminuted from Subdivision, and the Degree of Heat but moderate. Its Diffusion through Vessels so circumstanced must be attended with a very gradual Assimilation ; and it is not seldom found, for some Time, so very confined and local, that a Tingling to the Extremity of the inoculated Member is perceivable, a few Days before any such general Lassitude, or erratic Flushings, as signify its Operation on the whole Mass. This is most probably owing to the earlier Alteration of the Fluids in the more immediately communicating superficial Capillaries, twitching their nervous Fibres ; and may prove one Means of inviting a greater Proportion of the future Pustules to the first infected Limb ; a Part which, however necessary, is not essentially vital ; but which, on this Occasion, by continually and equably solliciting the morbid Effects from those which are so, may often conduce to the Preservation of Life.* And this (a) slow and gradual Diffusion of the variolous Matter thro' the Mass, is likely to render the Habit more pliable to the Distemper, by its not causing such a tumultuous and sudden Alteration of the Blood, as must greatly endanger the Patient ; all sudden Changes in the Habit, whether from Air or otherwise, being stigmatized as perilous by HIPPOCRATES long since.

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* Thus the Effects of the very same morbid Cause, suppose that of the Gout, which are so often mortal, when exerted on a vital Organ, prove only painful, and not seldom salutary, on the Extremities.

(a) Το ὅ κατ ὀλίγον ἀσφαλές. L. 2. Aph. 51.

As I have heard some Physicians doubt, and others deny, the Eruption of the Small Pocks on any of the *Viscera*, most of which have their superficial *Spiracula* or Pores, as well as the Teguments; and which *visceral* Eruption there is so much Reason to infer, from the Pustules we can discern within the Mouth, the Nose, and beyond the Palate, in the confluent Disease: to put this important Matter past all Doubt, I shall cite the Testimony of an Eye-witness to the Certainty of it, upon the Dissection of variolous Bodies; who, after quoting FERNELIUS and PAREE as testifying the like Appearances, declares he has seen one half of the Lungs destroyed, and the Guts, especially the great ones, gangrened in Consequence of the manifest variolous Pustules there. His own Words are *Ipse quoque mediam pulmonis partem variolis exesam destructamque hisce oculis vidi; sicut etiam intestina omnia, et præcipue crassa, plena variolarum pustulis manantibus, in quibus jam gangræna aderat.* VIOLANT. *de Variol. et Morbill.* p. 71. These horrid Appearances were from accidental Contagion. And here does it not seem clearly probable, I had almost said evident, that Contagion communicated solely through a very superficial Wound into the Skin (which becomes a running Ulcer from the Matter applied) is much less likely to produce this Eruption on the Bowels or any vital Organ, than that Contagion which makes its first Impression on the Brain, the Lungs, or the Stomach? Indeed when I have seen the Adult inoculated, sometimes under a very considerable

derable Eruption, very fore and tender, yet declaring themselves perfectly free from the least inward Sickness, I have generally ascribed it to a total Absence of any Eruption within, among the softer, hotter, more humoral and feculent Parts. This I have also imagined to be the Case of many who surmount a natural Coherence, and of the few who emerge thro' a natural Confluence. But the very rare Diffusion of Bodies sinking under the more fatal and loathsome Degrees of this Disease, renders the Existence of such Appearances more controvertible.

All this may possibly suffice to instill a general Conception of the Commencement, Progress, and Circle of Infection in its different Modes; but its specific Action on some Parts of the Blood; its Co-operation with others; the Resistance and Dilution it may encounter in peculiar Habits; and every Conflict between the Venom and the vital Principles, are necessarily latent, both from the invisible Nature of the Contagion, and our Ignorance of the perfect Texture, Cohesion and Activity of the infected Particles. Were the Angel in *Milton* supposed to purge *Adam's* visual Ray, permitted for a while to endue us with a supernatural Intuition into the intimate Composition and Motion of Substances, and then presented a living and transparent Man for the Object of our Sight and Contemplation; when we saw the vital Machine in perfect Order compleatly exerting every corporal Function, and subtilizing some Part of our Fluids, 'till they attained the requisite

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Qualities to minister between Mind and Matter, and became indispensable to the Exertion of Intellect: And when we subsequently observed the gradual and various Alteration of the Blood, from the visible Operation of these infectious Atoms; and discerned the substantial Reason, why the formerly nutritive Particles became predatory on the Solids, and the nervous Secretion so depraved, as to eclipse the *divinae particulam aerae*, the human Soul: And at last distinctly saw every oeconomical Effort, by which all such morbid Alterations were effaced, and the animal Functions and rational Faculties restored to their former Sanity and Consistence; as the combined Art and Wisdom of our whole Species would be unequal to the Imitation of such exquisite Contrivance, the tremendous august Process must equally illustrate the Glory of the omniscient, omnipotent ARTIST, with the Firmament and Stars themselves. But since our natural Perceptions are inadequate to such a Scrutiny; and the divine Purpose of our brief Duration here renders it unnecessary; let us try if an Attention to the sensible Consequences of the variolous Principles, may not at least afford us some very analogical Idea of their Operation.

Though the Doctrine of a vinous-like Fermentation in the animal Fluids is, upon the whole, perhaps justly exploded; as the frequent arbitrary Supposition of it, and the ascribing a particular fermenting Power to most of the visceral Secretions, appear to suggest little rational In-

dication and Practice: yet there certainly is a striking Resemblance of it in the *Apparatus* and Process of this particular Disease. The Particles of the Yeast conveyed into and agitated through the fermentable, but hitherto unfermented Liquor, attract, or are attracted by, certain Particles of it; from whence an unusual Degree of intestine Motion is generated in it, after a certain Period, which is somewhat accelerated by Heat, and retarded by Cold, or other Accidents; from which augmented Motion the Liquor becomes hot, turbid and rarefcent; and after the Expulsion of some palpable Parts, and much Air to the Surface, the Motion subsides, the remaining Liquor becomes fine; nor is the Yeast, thence augmented and separated, capable of renewing the Fermentation in that specific Liquor, tho' it is, in another unfermented Mass of the same Kind. The Analogy between this and Inoculation, particularly, where the palpable Ferment applied is augmentedly returned; and where the Air expelled with the Yeast similarly answers to the con-nate and perhaps aerial *Fomes* (which is very rarely, if ever, regenerable in the same subject) is too obvious to require any Inforcement. Doubtless it was this striking Resemblance, that prompted SYDENHAM, who was no Idolizer of *Hypotheses*, to term the Eruption and Suppuration of the Pustules, a Despumation of the Blood. And as excessive Fermentation leaves the impoverished vegetable Fluid unqualified to nourish or to exhilarate; so excessive Assimilation too often extinguishes

guishes the vital, or destroys the salutary, *Crafsis* of the Humours.

Now notwithstanding the Authority of BELLINI, (a) and other eminent Physicians, I am incapable of conceiving, that this Infection of the Blood produces any extraordinary Sizinefs or Cohesion in it ; or that it operates on it, as Acids do on Milk, by coagulating and hardening one Part and attenuating another, which is the same Thing as separating its *Crassamentum* and *Serum*. It seems to me, on the contrary, rather to divide the red Globules, and possibly to impair their perfect Sphericity and Smoothness ; whence their Circulation through the contractile Vessels becomes more irritative. Thus professor SCHACHT calls the (b) Blood in this Stage thin, florid, fused, and sharp. And this to a certain Degree, in some cold and sluggish Habits, will be so far from assuming a morbid Appearance, in its Infancy, that the Person will seem more than usually

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(a) Ille igitur dolor pulsatorius (scil. capitis in variolis) non ab aucto motu aut quantitate sanguinis poveniet ; sed vel a lentore subitam trajectionem prohibente ; vel a rarefactione & quasi fervore, quo subita illa trajectio similiter impediatur : vel ab utroque simul, seu, quod idem est. a fermentatione quadam sanguinis, qua fiat, ut solvatur a duriori liquidius, atque ita hoc rarefcat, illud subsistat magis.—Est igitur similiter febris variolarum vitium in qualitate sanguinis, qua solvatur, & fit partim lentior, partim liquidior.—*De Febris, Prop. xxx.* But it is observable, that, in accounting for the Symptoms, he is obliged to recur much oftner to the Fusion than the *Lentor*. It is even affecting to observe, how oddly Dr. *Willis's* Hypothesis of coagulated and congealed Blood in this Disease corresponds with his Histories of the excessive Hæmorrhages in it.

(b) Sanguis tenuis, floridus, dissolutus, acer.

Instit. medic. præct. P. 39.

ally alert and lively, of which I have positively seen some indubitable Instances ; and I have known such a slight Cough, as might be attributed to a *Lentor* from Cold and a checked Perspiration, (but in which the Lungs were justly supposed entire and sound) go off entirely within 48 Hours after Inoculation ; to which it should not be denied, that the general Caution and Regularity of Persons after it might contribute : but as the Cough vanished, it was incontestable, that Inoculation furnished nothing towards its Increase or Continuance, which an increased Viscidity of the Blood very probably must. I knew a Gentleman too between 40 and 50 Years of Age, having been a Valetudinarian for the two or three last, (and had probably had some glandular Obstructions of the *Viscera*) who declared in Company one Night, that he felt himself much better than for a considerable Time before, and, as he expressed it, entirely well : the next Day he was seized with an exquisite *Lumbago*, which terminated in a violent Degree of the Small Pocks, that proved mortal the eighth from Seizure. Dr. MORTON himself acknowledges, that this Poison is a hot, acrid and colliquative one ; tho' his Practice, by the Way, was a pretty odd Method of opposing such a Poison's Effects. LISTER observes, that in the highest Species of the Small Pocks, the Fusion of the Blood was such, that, after it was cold, the slightest Touch of a Feather would move and divide it like Water. BOERHAAVE affirms that in the first Stage the Blood is remark-

remarkably bright and florid. In short, the copious, and sometimes profuse Hæmorrhages; the irregular Eruptions of the *Catamenia*, that often occur on the Invasion of the Disease; the intensely red and purple Eruptions, and the dreadful *Phænomena* of the bleeding Pocks, all convince us of its fusing Quality, as the latter evince the Fatality of its extreme Fusion. The early Hæmorrhages indeed we find often salutary, (a) as the variolated Blood, and possibly the very Seeds of the Disease, may be expelled with it; which furnishes no bad Hint of the Advantage of bleeding in certain Constitutions and Circumstances, on the Approach of the Disease; though we cannot imagine Art shall withdraw the infected or infecting Particles, as electively, as Nature may separate and expell them: yet profuse Hæmorrhages in the Progress of this Malady are much oftner fatal than critical Symptoms.

BELLINI has not specified which Part of the Blood, the *Cruor* or *Serum*, he supposes dissolved, or inviscidated, or partly both; nor which of the common Principles of either he thinks chiefly impressed or assimilable by this Infection. With Regard to the *Cruor*, is it not an evident Contradiction to common Sense, and an Insult on physical Reasoning, to imagine, that an increased *Lentor* and Cohesion of the red Globules can fit them to pass those strait cuticular Ducts, which their salutary Size and Cohesion does not qualify them

(a) Exanthematologia. P. 305, 306. Saepe narium haemorrhagia hos aegros curavit. Boerb. Prax. Vol. V. P. 312.

them to do ? and will the Experiment of the human *Serum*'s inspissating over Flame sufficiently infer, that it may be subject to the same Condition, while it circulates, from this Infection, and that in the very *Apparatus* of the Disease ? Does not the White of an Egg, which also inspissates over actual Heat, and which, like the human *Serum*, is proved to be nutritive, become sensibly thinner from a stronger Agitation than the Humours undergo in their Circle ? But it must be absurd to suppose a further Fusion of the serous or lymphatic Globules, as necessary to their Transmission to the Surface ; since in a healthy State their superfluous or recementitious Particles continually exsude or evaporate through its Passages. And how would an Eruption of them only, if morbidly inviscidated, agree with the Colour of the Eruptions in the different Degrees of the Small Pocks ? It follows then, that the red Globules must be comminuted or divided by the Effects of this Poison, for their Transmission to the Surface ; where they are accompanied with a greater or less Proportion of the *Serum*, in whatever Measure infected, which renders the Can a more supple and yielding: tho' upon the Degree of this Comminution I apprehend the Event of the Disease capitally depends. When the Eruptions appear of the Colour of a Damask Rose, which SYDENHAM justly observes to be their most benign Complexion, may we not reasonably conceive the Proportion of the infected red Globules to be but small ? their natural Size, Figure and

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Consistence to be but little impaired, from their diluted Resemblance to arterial Blood? and their Distances from each other in their containing *Serum* to be considerable? since we certainly know the Quantity of tinging Particles to be lessened in their Proportion, and to have their Distances augmented, from the lighter Colour that results to any Tincture, on the Addition of a colourless untinging Fluid. And may we not as reasonably apprehend a great Infection and Attenuation of the red Globules, from the precipitate and copious Appearance of deep red, purple, or livid Eruptions? when we perceive that the brightest tinging Materials, suppose Cochineal or Alkanet, impart a Deepness that amounts to Opacity, and some Degree of Darkness, as often as their *Menstruums* are highly saturated with their overcrowded Particles. And does not the Transparency and different Shade of Colour, that ensue from a liberal Addition of the untinged *Menstruum*, hint something of the *Rationale* of simple and mild Dilution in this Disease? which nevertheless should not be excessive; since such an Ingurgitation of the most proper Fluids may confuse the Motion of, and consequently the Secretion from, the Blood. Nature is seldom a bad Director on such Occasions; for where much is necessary, much will be coveted.

And here recollecting my Engagement, in the Close of the first Section, to offer, in treating of the Operation of this Contagion, the best Idea of it which my Reflection and Imagination afforded me;

me; and finding that Professor SCHACHT at *Utrecht* makes a (a) Query, whether it may not be of an alkaline Nature, and affirms there are Arguments which make it likely, but without specifying any of them; I have repeated on this Occasion a few juvenile Experiments, that do not disfavour this Supposition: tho' I cannot conceive a Necessity, with most Chemists, and many former Physicians, of ranking all Substances either under the Denomination of Acid or Alkali.

Red Tinctures then, suppose of the before mentioned Materials, which are rendered of an Orange or lighter Hue, by Spirits of Sulphur, Vitriol, or Nitre, become of an intense red, purple, and even blewish, by the Addition of volatile or lixivious Salts, or the Infusions of alkaline Spirits, according to their different Proportions: when the predominating Affusion of an Acid restores them towards their first Colour, or lighter, which may be altered again, *vice versa*, by different Infusions for a few Times, but with less Transparency and Lustre; as a present Confusion or Cloudiness and ensuing Precipitation are the Consequence. Now notwithstanding we do not infer a considerable Similarity between the spirituous and watry *Menstruums* here and the human *Serum*; nor between the tinging-Particles of Alkanet and Cochineal (tho' the latter is a con-
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(a) An non probabile aliquid de alcalina indole habere? Dantur certe argumenta quae hanc opinionem verisimilem reddunt?

creted animal *Cruor*) and the red Globules of the human Blood; yet if any one shall from hence suggest the variolous Poison to be an invisible volatile * alkaline Salt, which proves a considerably caustic one in the most alcalescent Habits, it may not be very easy perhaps to dissipate the Suggestion. The Experiments indeed would be still more convincing and illustrative, if such Admixtures excited the same Appearances in a Tincture of human Blood, extracted with a Serum-like *Menstruum*, and kept up, during the Experiment, to the ordinary Height of human Heat. And should this answer, tho' we are less solicitous about the Class than the Nature of this infectious Cause, we would pursue Lord BACON's Advice on another Occasion, where he says, ' If any Person shall discover a Metal or Composition of the same Weight, Colour, Ductility, and all the other Properties of Gold, he may leave others to dispute about the Appellation of it.' The Change of Colour from scarlet to deep red, or purple, on the Addition

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* Will this infer the Probability of a peculiar *Alcalinum vagum* in that Constitution of the Air, which has been thought epidemically communicative of the Small Pocks, without animal Contagion? And may the supposed *Acidum vagum* in the Air attemper and restrain the alcalescent Disposition of our Blood, upon that judicious Extension of the *ὑπερανίσωσις* of Hippocrates by Heurnius, L. 2. Aph. 22. which remarks, that Constitutions in the Excess of any Temperament thrive best on the moderate Use of Substances of the opposite one? And as Fire has great Influence in the Generation of Alkalis, rendering vegetable Acids, for Instance, Tartar, such; may not this Alcalescence of the human Blood be generally higher in the torrid Climates, where the Proportion or Energy of the *Acidum vagum* may be less too? And may not these be the providential Reasons of their abounding with the most acid and refrigerating Fruits?

tion of a strong Alkali, seems to me to result from an Alteration in the Shape of the tinging Particles, which may also imply a Diversity of their Size : and will not this strongly correspond both with the greater Number of such intensely coloured Eruptions, and with their extraordinary Stimulation and Pungency, when compared with those of the diluter rosy Efflorescence? which may be presumed, with the Colour, to preserve the Form too of arterial Globules; tho' probably somewhat comminuted, if the Ducts have not been a little dilated for their Extrusion. There seems at least enough in these Suppositions, to make every reflecting Physician diffident of the Propriety of those lixivial saline Draughts, which have been too often exhibited in the Beginning of the Small Pocks, to appease the symptomatical Reachings, that usually cease, when Eruption fairly appears. At the same Time it may be prudent to aver, that we do not intend, from the supposed alcalious Force of this *Virus*, to recommend the Cure of it by an injudicious Use of Acids; since some Degree of its own Operation is necessary to extricate it from the Blood, and to conduct the infected Humours out of the human System. And tho' the judicious prophylactic Method of RHAZES was a very cool and acid Regimen; and HOMBERG assures us, the Fluids of young Animals afford more Acid than those of Adults of the same Species; whence one Reason of this Distemper proving generally milder in Children, may be some Approach of its external Cause

Cause to a more neutral State in their Fluids : yet it may be the Height of Imprudence, 'till its specific Antidote be discovered, to attempt an Extinction of that ordinary Process, by which it so pervades our Constitution, as never to revisit it : notwithstanding we have little to oppose to its most virulent Operation but powerful Acids, Styptics ; and not only free ventilating Air, but perhaps the strongest potential Cold we can generate and apply.

Thus far of its Action chiefly on the red Globules : but in the very confluent Small Pocks, which however dangerous, are considerably less so than the bloody Sort, we find an extraordinary Derivation of Lymph to the salivary Glands. This must either happen from a variolous Dissolution of the red Globules into serous or lymphatic, as it occurs in mercurial Salivations (from whence nearly an entire Renovation of the Mass) or from a vitious or variolous Lymph : tho' the meer Irritation of the *Fauces* might certainly occasion a great Derivation of it thro' the salival Glands, whatever its Quality be. I am sensible that a very few experienced Physicians have imagined a great Quantity of this Discharge, rather pernicious than serviceable to the Patient ; tho' SYDENHAM and others consider it as essentially salutary to Adults in the confluent Kind. Possibly the former suppose it exhausts the Patient extremely, and leaves the Mass too viscous and undiluted. For my own Part, 'till still further Experience may instruct me otherwise, tho' I

generally suspect those Degrees of the Disease, that bring on this Discharge profusely ; and always desire to see such as are commonly attended with little of it, I confess I apprehend, that Adults seldom emerge thro' a great Confluence, without a considerable Evacuation this Way ; especially where the Pustules have not suppurated more benignly and brightly than such generally do. Perhaps it might be as reasonable to suspect the moist Swellings of the Hands and Feet, which, in the happy Termination of such Cases, almost ever succeed to the Abatement of the Salivation, and the Tumour of the Face. If the *Saliva* is morbid or variolated, the Expulsion is necessary ; and it may be worth an Experiment, whether a less or greater Quantity of it would communicate the Disease by Incisions ; which perhaps it may as effectually do, as the *Saliva* of a mad Dog injects his *Rabies*. May we infer then, that Bodies very pregnant with the variolous *Fomes* have their *Serum* proportionably furnished with it ; while in others it may possibly serve to dilute the former, and attemper the Effects of Contagion ? But however this may be, the great Fusion of the Humours, in the severer Degrees of this Malady, is fully manifest from this Evacuation.

TIMONI indeed affirms, that among the other good Effects of Inoculation, it is attended with *no* Fusion of the Blood ; which I conceive is not to be admitted without frequent Limitation : but had he affirmed, it was very generally attended with *much less* Fusion, it would have been strictly right.

right. And indeed I have often seen such a small Number of Pustules by Inoculation, from half a Dozen perhaps to half an hundred, and those fill, or sometimes half fill, with a thin dilute Humour, the Patient continuing all the Time entirely light and easy, that it was obvious there had been very little Fusion of the red Globules. But surely the remarkable frequent Flushings, before actual sickening by Inoculation, will dispose us to infer some * Attenuation of the red Blood. And as a very plentiful Eruption now and then happens to a few of the inoculated, with a proportionable Inflammation and Maturation; it is offending against Experience to affirm *no Fusion* of the Blood from Inoculation; and is really doing no Service to the Practice, which is diserving the Subjects of it: as the most effectual Way of promoting it is to relate all, and no more than all, the Truth concerning it. It must be admitted however, that the Practice was in its meer Infancy, with Regard to *Europe*, in TIMONI's Days; and perhaps it needed the utmost Eulogies he could give it, to avail us of its many happy Consequences, which we have since experienced.

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* I remember that about sixteen Years since, a young Nobleman at Westminster School, who was inoculated, died of a Loss of Blood in the Apparatus of the Disease; but whether it was from a spontaneous Hæmorrhage, or happened in Consequence of bleeding him in it, and not being able to stop the violent Effusion in Time, I cannot perfectly recollect; tho' I think it was owing to the latter. I visited a sanguine Youth of 14 or 15, inoculated 5 or 6 Years since, who, notwithstanding a preparatory Bleeding, fell into copious and repeated Hæmorrhages, previous to and during Eruption; but in other Respects past very easily thro' a pretty moderate Eruption.

We have insisted the longer on this attenuating, which in a higher Degree may be called the *fusing* Power of the variolous Principles; as we conceive it has an immediate Tendency to establish a more reasonable Practice, than what has too often prevailed on the Invasion of the Disease: since a considerable Error either of Commission or Omission then, is too frequently incompenfable by any Thing we can do, or omit, in the Progress of it. And too many seem to have mistaken the comparative Magnitude of the variolated Globules, in Respect of the small Channels thro' which they are to pass, for a general Viscidity of the Mass: and hence plying the Patient with very stimulating Attenuants within and without, they have precipitately exalted the Poison, whose Operation was to be mitigated with Judgment.

But tho' I have abundantly convinced myself, at least, of the fusing Power of this Contagion on the Blood, I conceive, that a very opposite State of the Blood may ensue, from its total Absorption by the olfactory Nerves, its Admission to, and Confinement in, the Brain. DIEMERBROECK and others have considered pestilential Contagion by Smell, as the most pernicious Mode of it: and perhaps the Force of that exquisite Poison is sufficiently deleterious, to extinguish the vital Spirits, or to arrest their Secretion and Action instantaneously; as some are affirmed to have dropt down dead, without the least previous Complaint or Token of Infection. But as the variolous Contagion is certainly less virulent, we may
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contemplate at least, what will probably prove the Consequence of its total Absorption by the Smell, and its Confinement to the nervous System. Now though we can form no precise Idea of the Manner of its Diffusion thro' the Nerves, or the unravellable Substance of the Brain ; yet, as their Texture and Sensation are very exquisite, its Residence must be incommodious, and will certainly lessen, or some way pervert, the nervous Functions. But the Quantity received was not yet augmented by the humoral *Fomes* : its Activity is not likely to be exalted by the comparative Coolness of the Part, and the Slowness of what imperceptible Circulation there may be in the cortical and medullary Substance. It is equally probable, that whatever the nervous Secretion may consist of, it is too highly attenuated to be a commodious Soil for the Invelopement and Increase of these contagious Seeds. If their Presence impairs the Functions of those Nerves, that are particularly subservient to the vital Motions, the Contraction of the Heart will be feebler, the Circulation more languid ; the nervous Secretion at its Origin proportionably lessened ; and the Blood be thence disposed to a more stagnant and viscid State. If the inhaled Contagion prejudices those Nerves, in their Substance or Contents, which mediate between the Mind and external Organs of Sense ; and those whose Functions are necessary even to intellectual Perception, Sensation will become so obtuse, the vital Oeconomy so confused, and the Faculties so oppressed, that
both

both animal and rational Life will be surpris-
 ingly obscured, and the Circulation but just suffi-
 cient to prevent their Extinction; untill these Inva-
 ders are expelled by some extraordinary Effort of
 Nature, Art, or both, from such improper Quar-
 ters. And besides that this Eclipse of the Mind
 calls for a more stimulating *Crisis* of the Blood,
 to excite the Functions of the human Organs,
 the Contagion that would conduce to it, if in the
 Blood Vessels, is differently employed. This
 must be more than meer Imagination, as I have
 repeatedly seen Persons in this very State before
 Eruption, comatose, torpid, cold and relaxed;
 and I particularly remember a young Subject thus
 affected, who, being roused by a Vomit, a Blis-
 ter, and some fetid Cordials, received a moderate
 Fever, that was soon attended with a mild Erup-
 tion; on which all the nervous Symptoms vanish-
 ed, and the Disease terminated happily.

A worthy Physician of St *Bartholomew's* Hos-
 pital, has candidly obliged me with three Histo-
 ries of this Mode of variolous Infection, two by
 the natural Disease, and one by the Infusion.
 For tho' we have supposed the latter the most im-
 mediate and simple Application of this *Virus* to
 the Blood; yet, wherever the earliest Symptoms
 are considerably more nervous than inflammatory,
 we chuse to denominate the Infection such. Be-
 sides as some nervous Fibres are divided, as well
 as some capillary Blood-Vessels, by the Incisions,
 we cannot be certain whether the former may
 imbibe any of the purulent Particles, or their vo-
 latile

latile Poison, or not ; tho' we can be pretty clear from the Symptoms themselves, where the Determination of the contagious Particles has been, whatever their immediate Receptacle was.

The first Case, in the natural Way, was that of a Girl between six and seven Years old, who, after a Complaint of her Head and Back, was seized with a very violent and long Convulsion : When it was over her Speech greatly faltered, but returned, 'till being seized with three successive Fits next Day, she lost the Use of her Speech, and Limbs entirely. The Eruption notwithstanding appeared, was very distinct, and terminated easily, tho' she lay speechless and motionless all the Time. Full three Months after she began to recover her Speech, but her Limbs more slowly, for in July subsequent to the January when she was seized, she had a great Weakness in her Legs with frequent Trembling. Here the Symptoms were apparently nervous, tho' the Chanel of Infection is uncertain. She is since entirely recovered.

The second Patient, who was also accidentally infected at five Years of Age, was judged to have a favourable Eruption, which soon turned : but the following Day, after a violent Sickness at Stomach, she lost her Speech in a very few Hours ; and, within a few Days, both her Senses and her Strength were reduced to that of an Infant in the Month. This Privation continued, tho' with some Increase of Appetite, and Health in other Respects, for six Weeks ; at the

End of which she began to give some obscure Signs of Understanding, and to take that little Notice of Things which Infants do, but made no Attempt to speak 'till after 14 Months; and could not speak every Thing till the end of 4 more, as she seemed to learn more slowly in this than in her first Infancy. She could not however even then stand alone; but after using the cold Bath six Months, entirely recovered her Limbs, and continues now very healthy, about the Age of 36. In this Case the Blood seems to have been primarily and moderately infected, and the Nerves to have suffered but in Consequence of a Translation of those morbid *Effluvia*, which should have salutarily transpired from the Surface. But had the Infection, and consequently the Translation, been more copious, might not a total Extinction of the nervous Influence, which is Death, have ensued instead of this partial one? this being probably the Case of many who expire convulsed about the same Period under a severer Eruption. There also was, before the former Edition of this Treatise, an Adult at St. *Bartholomew's* whom I had seen; he had a moderate Eruption in *April* 1752, which filled and turned benignly enough; tho' he lost the Use of his Speech and Limbs for many Months: which he had not wholly recovered in *August* 1753:* and on this Article of nervous Infection I may refer to the Case of the Boy, tho' not variolous, § 1. P. 12. who recovered from the Stench of the putrid

* He has not yet recovered articulate Speech, and has a weekly Allowance from a Parish at *Bath*, at this Time 1761.

trid Body, but lost the Use of his Limbs, and was forced to take to a sedentary Trade.

The Case by Inoculation was that of a Child between two and three Years old, who had been brought low by a Fever a little before. His Convulsions were violent, his Pustules very few, and when they finished their ordinary Course, he had entirely lost the use of his Speech and Limbs, and could not keep his Head erect; which, on his being set up, tumbled sideways or forwards. It was three Months before he fully recovered his Speech, and at the End of five his Limbs had not attained their former Strength. At this Time however, having very lately seen him, he is very lively and walks pretty well; tho' not quite so firmly as some robust Lads of his Age, being now towards eleven. Indeed there is some Ground to suppose his Nerves have been originally rather weak: he had some Convulsions in a former Fever before the Invasion of the Small Pocks, and one or two previous to the Measles, which happened afterwards.

May we reasonably infer here, that the preceding Fever, which had brought the Child low, made him still more obnoxious to these nervous Symptoms, both by further weakening his Nerves, and lessening the humoral *Fomes* of the Disease for a Time? as we have already remarked, that the *salino-sulphureous* Parts of the Blood were discharged in an extraordinary Proportion by Urine, in the salutary *Crisis* of acute Fevers. Neither is it difficult to conceive, that where the

Contagion finds but little Employment, and creates little Tumult, in the Blood, it may not the less easily pervade the most subtil and untraceable Recesses of the Circulation, the Brain and Nerves; tho' possibly its Residence in the Blood, for some Time before its Arrival there, may render it more stimulant and dangerous, than its Conveyance there at first thro' the olfactory Nerves; since we do not experience the like Irritations to ensue for some Days after a manifest Infection by Scent. And as some weak and tender Subjects fail in this Manner of Invasion before Eruption, tho' very rarely; may we not ascribe it to the invincible Lodgment of the volatile Poison in the Nerves immediately subservient to vital Motion, which, preventing their Functions, must occasion sudden Death? Thus also their Determination to the Nerves of Speech and Sensation will abolish those Functions; and that to the Nerves, which are instrumental to the Exertion of the different Faculties, must produce a Loss or Obscurity of them: all or some of which Effects were probably prevented by the Expulsion of the poisonous Stench of the putrid Carcase, far from such Nerves, to the great Ischiadic one, which terminated in the Boy's incurable Lameness. May it not clearly follow from such Fact, that the epileptic Insults of Children previous to Eruption, (which SYDENHAM and Experience inform us are generally succeeded by a distinct one) are an extraordinary Effort of Nature, by which she explodes, as it were, the heterogeneous

ous Cause into the grosser Circulation, for its Expulsion by the Surface? Have these convulsive Agitations any co-operating Tendency to excite the subsequent Fever necessary to this Expulsion? And does this Fever make the Blood more strongly attractive of this Poison which convulsed the Nerves; and thus serve as some *Succedaneum* to the Paucity of a humoral *Fomes*, by exalting what there is of it? And as all such horrible Distortions of our Frame are accompanied with great seeming Agony, has the divine Compassion obscured our Feeling and Perception at the same Time; to the End, that while a very painful Cause and unnatural Kind of animal Motion violently acts and subsists, it should prove tantamount to none, from our concomitant Insensibility? By the Way, are not the *Tremors* that frequently infest Children before, and in the Infancy of, Eruption, and which seem a Kind of vibratory Motion of the Nerves, a considerable Argument that such a State of them is morbid; and that their natural Action is not by Vibration, as some have imagined?

Now as all the aforesaid Subjects of this Mode of Infection had a very mild Eruption, which Children convulsed in the Attack of this Disease frequently have, is it not highly probable, that many who have a natural Scarcity of the variolous *Fomes* may (but more particularly where their Nerves are originally weak, or rendered so by any previous Depression) be more liable to the like Symptoms; while such hot active Blood as abounds with it will be proportionably attractive
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of its inflaming Spark? This may be illustrated a little by our seeing a Candle whose Flame is out, but the Wick not extinguished, quickly catch Flame, and even at some Distance, from a lighted one. In Fact what Course do we so successfully take in these variolously nervous Cases, as that of conveying such active Particles into the Habit as we suppose familiar to the *Pabulum*; while we excite such internal and external Stimulation, as the Contagion, when diffused thro' the Blood, generally does? Thus we see that a few Patients may be so peculiarly circumstanced in this Disease, that even the Scarcity or Feebleness of its inherent Cause, tho' very often to be wished for, may tend to the Production of some anomalous Symptoms: as half an Opiate has been known to keep a Patient awake, and to introduce an uneasy Confusion, by not procuring the Sleep expected from it. Such a State then must rationally suggest a very different Indication from that of the ordinary and regular Appearances of this Disease; and Bleeding especially must be as preposterous here, as its Omission would, in a high sanguineous Infection and strong Habit. Opiates too must act like Poisons; and this different Indication will coincide with the general Observation of HIPPOCRATES, (a) That a Fever succeeding Convulsions is oftner salutary, than Convulsions supervening on a Fever: while it evinces the Prudence of his thinking Imitator SYDENHAM, who

(a) Πυρετον ἐπὶ πᾶσι μᾶλλον βελτιον γενεσθαι, ἢ πᾶσιν ἐπὶ πυρετῷ. L. 2. Aph. 26.

who directed a Blister and Cordials in such Circumstances, for which he has been taxed by some, as inconsistent with his own *Regimen*.

Having so lately mentioned the great Impropriety of Opiates in such nervous Infections, I cannot omit an Instance of a deplorable Weakness of the Nerves, supervening after the repeated Exhibition of Diacodium only, in a Case from Inoculation: for the Communication of which, and more on this Subject, I am obliged to Serjeant RANBY.

The Daughter of a Nobleman being inoculated, at seven Years of Age, sickened very favourably the seventh Day, and had not more than 40 Pustules in her Face. But after complete Eruption, the Pustules, which were very large, growing sore, rendered her very uneasy: on which Account the Physician who attended ordered a Draught to be taken at Night with a proper Quantity of Diacodium; which was nightly repeated 'till the Turn of the Distemper; at which Time, tho' the Child seemed to retain her Senses perfectly, she totally lost her Speech and the Use of her Arms and Legs, which persisted, with very little Amendment, for three Years; her weak and feeble State continuing still longer, tho' she at last recovered and is now very healthy. This tedious Misfortune nevertheless did not prevent her noble Father, who was a very intelligent Man, from inoculating his only Son afterwards, but enjoining a Restriction from all Opiates. His Commands were obeyed, and his
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Son went thro' the Disease very easily and happily. — It is certain indeed that a few peculiar Habits are disposed to receive only the literally enervating Operation of this wonderful Drug. And every prudent Physician, the first Time he directs an Opiate for a Patient, must think it right to enquire, if he has ever taken any, and how they affect him. It happens fortunately enough however, for the Subjects of a Disease, in which Opiates are certainly often serviceable, that such peculiar Habits are very rare. Camphire has been said to succeed as an Anodyne where Opium disagrees, which I had never any Occasion to experience: and *Asa fœtida* has been supposed by some to obviate its depressing Consequences. We are certain there can be no Imprudence in avoiding to direct it as of Course, and for Form; but to let it be fairly indicated first, particularly in weak, suspected Habits.

And yet to speak the whole Truth on this Occasion, I am not convinced that the Diacodium, given here in its proper Dose, really occasioned the calamitous Debility, which ensued after using it; especially when I reflect that I have never heard, whether the * three Patients, who suffered so greatly in their Nerves under the natural and the artificial Disease, ever took any Diacodium or not. At the same Time this Case may serve, as some Caution, to moderate that rather officious than thinking Conduct of those who seem to judge, that all Sensation of Soreness is to be

* See their Cases p. 89, 90, 91.

be extinguished, by keeping the Patients, throughout the tender inflammatory State, under the scarcely intermitted Influence of Opiates : of which we may also observe by the way, that they have been thought by some experienced Physicians, to agree less in the Small Pocks of some Years, than in that of others.

Upon the whole of nervous Infection, it seems clearly inferable, that a Translation of the variolous Contagion from the Nerves into the Blood is more rarely fatal, than the Translation of the increased and heated Contagion upon the Nerves: for tho' we have admitted a few tender Subjects to miscarry under nervous Infection, for want of its Translation into its proper Receptacle, the Blood; without which, as its Vehicle too, Eruption, the first *Crisis* of this Disease, cannot ensue: yet a much greater Proportion die from an immediate Infection of the Blood itself. Of such it must be confessed many perish from the consequent Putridity, Colliquation, or meer Exhaustion of the Fluids; or an Inflammation and Gangrene of the Solids, while the nervous Functions seem not proportionally impaired. But we know from Experience, that still more are affected, towards the fatal *Catastrophe* of the confluent Disease, with such furious *Deliria*, high Orgasms, and strong Convulsions, as demonstrate the Nerves to be violently injured thro' the *Medium* of the infected Blood: And these may well be considered as their acute Symptoms, in Comparison of those before mentioned; which not going off with

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Eruption, nor yet extinguishing the Life of their Subject, terminate in a greater or less Imperfection of some of the animal Functions, for a longer or shorter Term.

It only remains to enquire here into the most usual Period after Infection, when its sensible Operation commences, which it seems difficult to ascertain precisely, with Respect to natural Infection. For where the Distemper is very rife and even epidemical, it is seldom the Subject, who is generally supposed to avoid Contagion, can strictly fix the Time of receiving it, or the accidental Contact of any infected Material: besides which, the Season of the Year; the general Character of the Disease during that Constitution of the Air; the particular Habit of the Subject, and his Way of living after an unconscious Infection, will probably occasion a little Diversity in this Period. Some have been said to sicken a Month or even two, after they have exchanged the Scene of Infection for another apparently free from it: and this has been strongly affirmed of a more virulent Contagion; tho' such Cases are undoubtedly rare. Others have sickened, as it were immediately, from the Sight of a Person newly out of the Disease: but this is generally accompanied with great Dread, and the Infection is often fatal. I remember one Instance of a Gentleman's complaining the seventh Day after a Scent, which was certainly variolous; and who, after a very copious Hæmorrhage from the Nose on the eighth, past thro' a kindly Distemper.

per. This by the Way must assure us, that the Blood may be primarily infected even thro' the Smell, as we had no Convulsion, remarkable Head-ach, Delirium, *Torpor*, or nervous Symptoms; except the *Lumbago* be one, which was dissipated by the Loss of Blood, the Stream of it being very free, and the Complexion bright and florid. As this acute Disease however has its different *Crises* and *Stadia*, perhaps the most regularly of any, let us suppose that the Seeds of it, even unconsciously received, have, in general, a certain Period of remaining in the Blood, before they effect its sensibly morbid Alteration. Now as the Inoculated rarely complain, or but slightly, before the seventh Day after, and often not untill the eighth; and the most benign Pock is generally arrived at Maturation the seventh from its Appearance, we may grant them to lie about a Week in the Habit, before they are sufficiently increased to manifest the Symptoms. But here it is plain the Inoculated, who can ascertain the very Minute of Infection, have a material Advantage of those unconscious of it: since, besides their Preparation for the Disease, they have, as it were, super-added a new *Stadium* of a full Week previous to the sensible Invasion of it; in which, while they endeavour to lessen and mollify its natural Fuel, they are certain to commit no Irregularity that may exasperate the Infection; which the others, especially if Male-Adults, are so liable to do. But having admitted this seeming Inactivity of Infection for a Week, it should

be subjoined, for * Reasons already specified, that there are many Exceptions to it in the natural Way, which, tho' more rarely, may take Place in that of Inoculation too. Thus PYLARINI informs us, the Symptoms do not appear in all the Inoculated at the same Period; the Ferment acting sooner or later, according to the various Temperament, Age and Strength of the several Patients; and he says, there have been Instances, tho' rarely, where Eruption has appeared the first Day. TIMONI also says, the Small Pocks begin to appear sooner in some than in others. Dr. LE DUC, who was inoculated at *Constantinople*, sickened the fourth Day; he had a small Eruption of the distinct Kind, and ascribes the Disease to Art. So that upon the whole, our early Inoculators seem to have hurried on too precipitately to this Conclusion, that as many of their Patients as sickened before the seventh Day, which some of the few who miscarried did, had previously received the natural Infection, to which they were very zealous of ascribing the Miscarriage. And tho' it is certain that most of them had been too much exposed to the Hazard of it; and some, with the greatest Probability, had taken it; nevertheless since this variolous Assimilation is a morbid Alteration of the Blood, wherever the Matter capable of such Alteration is very copious, it is reasonable to infer, that the Progress of it may be proportionably speedy; and sometimes even precipitate Nature to attempt that Separation of the assimilated Humours, which is
necessary

* See P. 98.

necessary to purify the Mass for vital Purposes. We are not to wonder however, that all the Observations from TIMONI and PYLARINI were not at first so strictly attended to, where the general Event of the Practice was very prosperous. Mr. MAITLAND, our earliest Inoculator, was a very moderate physical Reasoner himself; some Pamphlets that appeared afterwards under his Name, in a medical Justification of the Practice against Dr. WAGSTAFFE, &c. being ascribed to the ingenious Dr. ARBUTHNOT. Undoubtedly, among its many early Promoters, some acted from Candour and Philanthropy, and others too probably from a sordid Attachment to themselves alone; which must dispose them to qualify and elude, to their utmost, any Event, that might contract a valuable Article of Trade. But no longer to indulge any unavailing Reflections, a great Majority of Instances obliges us to admit the seventh or eighth Day, as the most general Term of the artificial Invasion, and the ninth or tenth of Eruption, in this Climate: where it occurs earlier, we may reasonably apprehend a greater Disease: tho' it is certain, that this pretty general Axiom is not without its Exceptions. We have just mentioned one in the Case, of * Dr. LE Duc. Another happened to a Gentlewoman about 30, whom I inoculated in December 1757. She sickened at the End of the fourth, or very Beginning of the fifth, from Inoculation; had Eruption on the seventh, with benign moderate Symptoms,

* See above P. 100.

Symptoms, and not above seventy Pustules at the most. And thus although, where Eruption is retarded a Day or two, a very gentle one is the most general Consequence, as I remember it proved to a young Lady, whose very moderate Eruption was delayed to the fourteenth, and whose Distemper was next to none : and likewise to Mr. WILLIAMSON from *South-Carolina* whose Eruption appeared on the thirteenth, and was very moderate indeed ; yet I have also met with a few Exceptions to this Rule, by a considerable Eruption ensuing notwithstanding it had been tardy ; and in which the Symptoms have been high, tho' not fatal. I have been also authentically informed of three Instances, occurring a few Years since, in two of which Eruption did not happen before the seventeenth Day, and was very considerable, with other dangerous Symptoms, tho' both did well. A Boy of seven Years old at *Egham* sickened the twenty-third from Inoculation, had a severe Eruption and Disease, but escaped. His Brother, inoculated with him and from the same Matter, sickened at the ordinary Term, and past the Disease very easily. The two former were not Brothers, nor nearly related I think. In Miss DEGRAVE's extraordinary Case, Eruption, which proved moderate, did not happen till eleven Weeks after Inoculation, upon heating herself at the Play-house, which produced an undetermined Controversy, whether she sickened from Accident or Art : but as she complained during that whole Interval of indifferent

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Rest and Appetite, and was subject to erratic Flushings ; and as DIEMERBROECK gives us (1) an Instance, from his own Knowledge, of the Contagion of the Plague lurking in the Body (tho' with a few such Symptoms, but without a Fever) for three Months before it plainly manifested itself, we may very well conceive the *Languor* or Dormancy of the variolous *Aura*, in a Habit but little disposed to the Disease, for eleven Weeks. There are undoubtedly some particular * bodily Dispositions with Regard to different

(1) De Peste. L. 4. Hist. 103.

* How very particularly a Person may be constituted for this Disease [for this Disease I verily think it was] will appear from the following Case.

About four Years past, when it was frequent here in Summer, one *William Cartwright*, a labouring Man towards forty, employed in a Foundry, on the lower Ground in *Southwark*, was taken with the usual Symptoms, which were followed with a very considerable Eruption, that turned yellowish in the Face, where they cohered at least, and were rather flat and sessile than prominent. Soon after, and to the best of my Recollection, even during Eruption, he voided for some Days a considerable Quantity of bloody Urine, which separated and deposited a large Cake of red Blood, as manifestly as that drawn from a Vein. The Swelling of his Face was so small, in Proportion to his Eruption, that he was never blind ; notwithstanding he had several Pustules about his Eyes, and on his Eye-lids. Many of those on his Body, and I remember particularly on his Thighs, where they were more distinct, were filled, not with Matter, but what appeared to be real Blood, and that rather darker coloured than usual. Others of them were yellowish, but less turgid, and scabbed and scaled as in the Small Pocks, pitting rather superficially. He spit but very little for his Quantity of the Disease, and complained scarcely of any Pain, but was very weak. He took the Drinks and Medicines prescribed him, which were of a temperate, nutritive, and somewhat incrassating Nature : he was scarcely ever delirious, did not once vomit, to the best of my Recollection, and recovered much as usual, and in about the same Term as after the common Small Pocks :

rent Infections ; and such a Variety of external Accidents may concur to retard, to accelerate, or otherwise to diversify their Operation ; that tho' we can generally predict the Term of their Energy from the Time of their Reception, it is not strange, that such extraordinary Instances should sometimes occur, as Exceptions to the general Rule, and elude the strictest Investigation of our very limited and imperfect Knowledge.

Pocks : when he took two or three Times, at the usual Intervals, a purging Infusion in which Rhubarb and the Bark were not omitted, arriving soon after to his customary Strength, and returning to his ordinary Labour. This Disease, with all its surprizing and threatening Irregularity, was however much liker the Small Pocks, than any other Disease I have seen. He had never had it before ; it was epidemical then in his Neighbourhood, where it has been frequently since, without ever infecting or terrifying him. I have seen him often since very well ; and tho' I know no other Name, but the Small Pocks, for his Distemper, I confess I would gladly give my Attendance and a Trifle besides, to engage him to submit to Inoculation, for a Proof of the Identity of his former irregular Disease, if he did not take by Inoculation ; and, if he did, to observe, how the undoubted Small Pocks would operate on so peculiar a Subject. The Certainty of the same Substances convulsing or killing Men, and nourishing other Animals (having myself seen a Maccaw often chew *Colocynth*, or bitter Apple, and nibble Arsenic a considerable Time, without any bad Effect) may be partly accounted for from the different Structure of their Stomachs, &c. and the different Consistence of their Blood. But the different Effects of the Poison Vine in *America* are much less intelligible ; as the slightest Touch, or the very Shade of it (which must act from its *Effluvia*) is assured to inflame, swell, and blister most human Bodies, while a few even handle it with total Impunity.



SECTION IV.

*Of the Rise and Date of Inoculation,
and its Introduction into Europe.*

THE preceding Enquiries into this Contagion and its Nourishment, and into some of the early and general Effects of their Combination, may conduce perhaps towards forming a radical Notion of this Disease; without which there can be little Prospect of its proper Treatment. And our daily Experience and weekly Accounts sufficiently attest the very considerable Fatality attending this Combination in the natural Way: so considerable indeed, that the Small Pocks have been generally esteemed more pernicious to the *English*, than to most other Nations of *Europe*. This was no bad Reason then for our being the first *Europeans*, who have largely availed themselves of the indisputable Advantages of joining the external and inherent Cause by Art: to which also the just and entire Possession of our religious and civil Rights, of our human and Christian Liberty, and the Genius of a People, who are strongly addicted to think for themselves, have greatly contributed.

But the first Discoverer of this Method, as well as the precise Time and Place of its Discovery, are not only unknown to the *Europeans*, but, as far as we can learn, to the *Asiatics* themselves, from whom we received it. Hence it is not improbable it might be made by * Accident, without the least medical Design or Deduction, and by some poor unlearned, but Heaven-taught, Mortal, who, from the rude and illiterate State of his Country, has never been recorded. Were this Conjecture as true as probable, the Fact might very properly repress the Pride of human Erudition, and the Futility of many laboured Researches : while it must naturally remind us of that Passage in the *New Testament*, where our Saviour glorifies his Father, for concealing some things from the Wise and Learned of the Earth, and revealing them to Sucklings. For had it occurred

* M. GEOFFROY observes, ‘that most Specifics too have been thus discovered, and gives us the following Account of the Discovery of the Bark, in his History of medicinal Substances, translated by Dr. Douglas, ‘Some Trees which bear it being blown into a Canal, or Pool of Water, lay there ’till the Water acquired so bitter a Taste, that no Person could drink it : one of the neighbouring Inhabitants, however, being seized with a violent hot Fit of an Ague, and finding nothing else to quench his Thirst, ventured upon a large Draught of this bitter Water, which cured him of his Fever and Thirst at the same Time. This being made known by him for the Benefit of his Neighbours, the same Water was used by many, with equal Success : but the Trees coming at length to rot, the Water lost its bitter Taste and Virtue likewise ; but upon a diligent Search after the Cause of this Bitterness, they at length traced it up to the Bark of these Trees, which has ever since been made use of, as the most certain Remedy for intermitting Fevers of all Kinds.’ — We do not find however, that the present Practice warrants the Exhibition of it in any Part of the Paroxysm, hot or cold.

curred to any Person of Rank or Education, or to one of medical Abilities, the Love of Fame or Profit must certainly have informed us of the Name of a Discoverer, who merits more from his Species than many, who have had Statues, and even Altars, erected to them.

I am aware that Dr. MEAD may be understood to suppose this Discovery the Result of (1) Study and Consideration in one Passage, where he says, ‘ As Experience had demonstrated, that no Person was ever twice afflicted with the Small Pocks; and that scarce one of a thousand escaped it entirely, it was thought expedient to consider how the Disease might be communicated :’ tho’ he qualifies this Notion soon after, by adding ‘ it was Matter of Wonder to him, how a People so ignorant of Physic, as the *Circassians*, could make the Discovery.’ Mr. MAITLAND, on the other Hand, expresses his Admiration of the great Sagacity and diligent Observation of the *Men*, as he phrases it, who first invented it. Dr. HARRIS, not with less Probability, supposes it discovered in some of the more ignorant Nations of *Asia*, and propagated to us by the Will of Providence. And surely there can be no Absurdity, nothing impious or presumptuous, in supposing the divine Compassion peculiarly exerted, in suggesting to afflicted Mortals, by whatever Means or Instrument, a Method for blunting the Arrows, and extinguishing, or very greatly restraining, the Fatality of this loathsome Destroyer : when we re-

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flect,

(1) De variol. P. 74.

fect, that the utmost Efforts of human Study and Skill very often fail in the Cure of its severer Degrees; and too probably sometimes perplex the slowly salutary Oeconomy of Nature under it. In brief this appeared the *dignus vindice nodus, cui Deus interfuit* : and these Reflections may deserve the Attention of those mistaken Theologists, who terming the Small Pocks the *Flagellum Dei*, make the very Success of Inoculation (instead of observing the divine Admonition of *judging of the Tree by its Fruit*) an Objection to the Use of it; as it is endeavouring, they say, to elude the divine Scourge. But this absurd Objection might as justly infer, that we ought not to use any human Means in any Disease, which may be equally by the divine Will, and certainly is by the divine Permission.

Cassim Aga, Embassador here from *Tripoli*, in the Reign of GEORGE the Ist, declared this Practice was so antient in *Tripoli*, *Tunis*, and *Algiers*, that no Body remembered its first Rise; and that it was generally practised, not only by the Inhabitants of the Towns, but also by the wild *Arabs*. Of course this Embassador could say nothing of the first Discoverer. But whoever this was, it may be inferred from our late Acquaintance with it, that it was not discovered untill some Centuries after the Appearance of the Disease. Our earliest Informations of it were from two Italian Physicians. TIMONI addressed his Account to the Royal Society from *Constantinople* 1713, in which he says, the *Circassians* and *Georgians* had intro-

introduced it into that Capital upwards of forty Years before.* He observes, the more prudent were cautious of using it at first, but that its subsequent Success soon extinguished all Suspicion; Persons of every Age and Temperament, and both Sexes, having submitted to it without one dying; and this in the worst Constitution of the Air, when the Doctor attests from his own Observations (having resided there eight Years) half of the naturally infected died. In short his Eulogies of it are very high, and his Precautions too few. The former indeed might be even necessary to encourage the Subjects of the Disease, to submit to so novel and paradoxical a Protection from its severer Degrees, as the immediate Reception of its Seeds into the Circulation: But the latter may have occasioned too general, too crude and precipitate an Application of it in our first Inoculators, as if a Miscarriage had been an Impossibility, which Experience soon contradicted.

PYLARINI'S Letter goes as far back as the Year 1701, when he was at *Constantinople*; and where, after examining into several Facts with Regard to the Practice, he consented to the Inoculation of four Sons of a *Greek* Nobleman of his Acquaintance. He says the Inventor is

* This makes the Duration of it in *Asia* and *Europe*, and consequently the Experience had of it in 1760, to be an Experience of about ninety Years. The Custom of *buying* and rubbing in the Small Pocks in *Wales* seems of near 160 Years standing, by such Evidence as we have to investigate it; which see in a Note to Section VIII. or the Reference in the Index to — Infriction.

is unknown ; but that it first prevailed in *Greece*, particularly in *Thessaly*. This Account is wrote with more Circumspection than the former, as he affirms the Symptoms, in Consequence of Inoculation, to vary according to the Diversity of Temperaments; and acknowlêges the eldest, of 18 Years old, had a very malignant Fever and very bad Symptoms, being scarcely out of Danger the 14th Day. He observes, that at the Time of his Writing, all but the more timorous were fully convinced of its good Effects, but that the *Turks*, as Fatalists, rejected it.

I found by a Manuscript of the late Sir HANS SLOANE's, which Serjeant RANBY favoured me with, that PYLARINI addressed his Letter to the Royal Society, of which Sir *Hans* was President at that Time, in Consequence of one the latter sent to Consul SHERRARD then in *Turkey*, to enquire into the Practice and Success of Inoculation. But notwithstanding the Date of PYLARINI's Answer, there was no further Notice taken here of the Practice, as the Manuscript observes, 'till it became effectually recommended to the Attention of the Public by the following Occurrence : to which however we may premise, that the laudable Curiosity of that worthy and benevolent Physician, which has enriched our Island with such a valuable Collection of the Productions of Nature, was a very early Cause of our Information on this salutary Article.

About the Year 1717, the very ingenious Lady MARY WORTLEY MOUNTAGUE, Wife of
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the *English* Ambassador at *Constantinople*, having carefully enquired into all Circumstances of the Practice, had her Son, at the Age of six, inoculated there: he had about 100 Pustules, and quickly recovered. And in *April* 1722 her Daughter, about the same Age, was the first free Subject inoculated in *Great Britain*. She had fewer than her Brother, and played about the Room chearfully under Eruption. Here then we may * date the happy Commencement of Inoculation, the memorable *Aera* of a great corporal Salvation from the Mortality of the Small Pocks throughout the *British* Dominions. And when that noble Lady's very pretty poetical Compositions may be overlooked, from the Fluctuation of Language, and thro' the Waste of Time, that excellent Sense, which prompted her to more than female Resolution, in Tendernefs for her Offspring, and proved in its Consequences an Introduction to this most salutary Practice, shall do unfailing Honour to her Memory; and *England*, that is said to have been termed abroad the Paradise of Women, shall exult on this Occasion, with the justest Gratitude to one, *Dux Femina Facti*.

But

* This was subsequent however to the Inoculation of the Male-factors in Newgate, which was performed *August* the 9th 1721. It is also affirmed, that Inoculation was practised in *New England* rather earlier than here, in Consequence of some Correspondent's transmitting PYLARINI'S or TIMONI'S Account of it to Dr. MATHER, a Clergyman there, who encouraged Dr. *Boylston* to undertake it. Whatever the precise Truth of this, not very important, Circumstance may be, it is certain they practised it very early in *Boston*; which will appear in the next Section.

But it remained for Royalty itself, for his Majesty, King GEORGE the Ist, and his late Majesty GEORGE the IId, both of worthy Memory, with his Royal and most discerning Consort, then Prince and Princess of *Wales*, to compleat and establish by their propitious *Auspices*, and generous Example, a Practice so happily introduced. For after the Experiment had been made, under the Sanction of the Royal Authority, on six condemned Malefactors successfully; five of the Parish Children of St. *James's* were happily inoculated; and a few Families of Distinction having the Operation performed on their Children with the desired Effect, their Majesties had all their Royal Issue then living * inoculated, with an Event truly grateful to every Friend of Reason

* The MS already mentioned says, it was done in Consequence of the late Princess Royal of *Orange* being then very dangerously ill of the natural Small Pocks, which affected her late Majesty with great Solitude for the rest of her Children: and that on Sir HANS's answering her Enquiries concerning Inoculation in Approbation of it, but at the same time expressing his Diffidence, (from his Uncertainty of the Consequences) to persuade or advise the Trial of it upon Patients of such Importance to the Public; Her Majesty, then Princess, asked him, if he would dissuade her from it, to which he answered, he would not, in a Matter so likely to be of such Advantage. To this her final Reply was, that it should be done then, and she immediately ordered him to wait on the King, who had also commanded his Attendance on the Occasion. Sir *Hans* observing, to the King, the Impossibility of being certain, that no dangerous Accidents should ensue from exciting such a Commotion in the Blood; His Majesty replied, that such might, and had happened to Persons, who had lost their Lives by bleeding in a Pleurisy, and taking Physic, tho' with the utmost Care: and upon Sir *Hans's* supposing the few ill Accidents from this Practice might be as fortuitously circumstanced, the Inoculation of the Royal Family was resolved on, and happily performed.

Reason and Liberty. In this Respect the Conduct was surely worthy the Parents of their future political Family, by admitting the Practice into their natural one, since the Maxim of *Regis ad exemplum totus componitur orbis* is generally true: * as if the divine Providence had, in this Respect, distinguishingly constituted their illustrious House its own subordinate Guardians of the natural Health of their Subjects, as well as Restorers of the political Vigour of the *British* Constitution, which had been in some doubtful Circumstances before their critical Accession to this Diadem. But this by the Way, this Sally of just and posthumous Admiration, void of the remotest Intention of Flattery.

It is difficult however not to reflect here on the very different Reception of this Practice in *Turkey* and *England*. PYLARINI informs us, that when it first reached *Constantinople*, it lay, as it were, concealed for some Years; being rarely used, and but among the meaner Sort. Its Tryal here was highly authentic and solemn: never was Mercy more judiciously exercised;

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* Dr. DELACOSTE in his *Lettre sur L'Inoculation de la petite Verole*, printed at *Paris* 1723, excepts the *English* particularly from this Habit, where he observes, ' that the greatest Part of the *English* Nation followed the wise Example the Royal Family set them on this Occasion; though not from a Spirit of Complaisance for their King, of which, he adds in Italics, *one cannot suspect that Nation*, but out of pure Conviction.' It would not have been very adroit indeed for this *French* Author, in a Letter addressed to his Most Christian Majesty's first Physician, to have aimed at a critical Distinction of the very different Regards, which a great and rational Majority of the *English* have paid to their truly Patriot Kings, and their Reverses, for a few late Centuries.

its Diffusion was quick and considerable ; and its Patrons were of the first Distinction. This was really acting up to the Dignity of reasonable reflecting Creatures ; to try and be determined by the very general Event of the Method, and to be superior to all senseless Prejudices from the Obscurity of the Inventor, or the humble Circumstances of the first Subjects of the Invention. It was a strong Contraste to the Conduct of the Distressed in a besieged City, who are said to have rejected the good Advice of the wisest Man among them, because the Man was Poor. And in this Point (as if there really was in Nature an inseparable Connexion between Riches and Wisdom) no small Majority of the Moderns seem to harmonize with these same besieged ; by profoundly enquiring, who, whence, and of what Account and Circumstance the Proposer of any Improvement is ; with other collateral Queries, equally tending to illustrate the Truth or Falseness of a Proposition, or the Merit or Futility of a Work, which must best appear from the most abstracted Examination of itself. And yet such is often our Bias to meer Names and Notions, that Dr. WAGSTAFFE, who was accounted a Man of Wit, was so very indifferent a Philosopher, as to think ‘ Inoculation’s being performed by Women, and among an illiterate People, so strong an Objection to it, that he was apprehensive Posterity would scarcely credit its Reception into the *British* Palace.’ His (a)

HIPPO-

(a) Μη οὐνεὶν παρὰ ἰδιότητων ἰσορρεῖν, ἢν τι δοκεῖ ζυμμερον.

Lib. de Praecept.

HIPPOCRATES might have instructed him, that Experience from every Quarter is to be regarded; and his unwarpt Understanding must have suggested, that the Facts, the general Events of the Practice, merited a little of his Consideration. Perhaps we may not prove more unlucky Prophets in apprehending, that a very extensive Posterity, and some other Palaces, may gratefully applaud the masculine Wisdom and Resolution, and imitate the exemplary Conduct, of the *British* Palace, in this Particular.

In effect, since the former Edition, this Preface has been partly accomplished, by the Court of *Sweden's* having sent the ingenious Dr. SCHUTZ here, to inform himself on this Practice now established in that Kingdom, under the most prudent Regulations. Some States in *Germany* have countenanced it, by causing and publishing a Translation of that Edition, or of its most necessary practical Parts, in the * *German* Language. A happy Conclusion of the present War will probably confirm the Practice there; at least in the Protestant States; from humane and political, and perhaps also from religious, Motives. Of some Advances towards it in *France*, where a Prince and Princess of the Blood have been successfully infected by Art, I may speak more particularly in another Section. Let it suffice to add in this, that we cannot reasonably doubt a

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* I saw a MS Translation of the greater Part of it into *French* at *Paris*: but as it had not, in my Judgment, fallen into the Hands of the most eligible Translators, I said little or nothing to promote its Publication.

more extensive Completion of this Preface; since His Majesty, when lately Prince of *Wales*, from that Love of his Species and of his Country, so amiably legible throughout his Royal Highness's whole Presence and Demeanour, had graciously condescended to associate the benign Title of Patron of Inoculation, to the many great ones which then bespoke Him, under God, the Continuer of the Honour and Prosperity of the *British* Empire to future *Britons*. How essentially great, in having thus realized his Assent to that most honest Axiom in Politics, *Salus populi suprema lex*, in its literal Precision, as well as in its utmost Latitude!

These, with the Omission of a Word or two, were, very truly, the Suggestions of a former Year. — But a consummate Exertion of such Virtue in the supreme Dignity infuses that sublime Respect and Admiration, which chastely delight in the contemplative Reserve of Silence, and decline every inadequate Embellishment of Words; as such grateful and glowing Emotions of the Mind are more easily conceived than expressed, at once with sufficient Justice and Delicacy.





SECTION V.

Whether Inoculation conveys the genuine Small Pocks? If with less Danger and Difficulty than the natural Disease? And if those once infected by Inoculation are secure from a second variolous Infection?

THE considerable Opposition this important Practice encountered on its Introduction here was extremely natural. It was very right to make every possible Objection to it, that was not plainly trivial and cavilling; and highly prudent to wait for its certain, and even habitual Success, before a general Concurrence in it could be reasonably desired. Hence the late diligent and ingenious Dr. JURIN employed himself, for many succeeding Years, in a strict Attention to the Evidence which Facts should give of it; publickly soliciting all Persons employed, or concerned, in it, to favour him with exact and impartial Accounts of its Effects and Events. He rightly supposed that its certain Propagation or Disuse must ensue, according as a numerous Series of Facts should subscribe to the affirmative

or negative Solution of the 2d and 3d Queries prefixed to this Section; to which I have premised the first, as some Opposers of the Method, and particularly Dr. WAGSTAFFE, affirmed it did not give the genuine Disease. And tho' the contrary of this soon became indisputable in the main; yet as a few of the Inoculated had no ensuing Disease; and as a principal Purpose of this Work is to inform all Practitioners, who are hitherto unread on this Subject, at home and abroad, and may hereafter be necessarily employed in it, of as much as is material of the History of Inoculation, and to initiate them, as it were, in its Rudiments; we shall first present the Evidence of its giving the true Disease, which being once evinced, a Security from a Return of it must follow as a necessary Consequence, if it really be a true Characteristic of it, never, or scarcely ever, to affect the same Subject twice.

The general Testimonies of the two Physicians at *Constantinople* have been occasionally recited. Mr. MAITLAND assures us, that three learned Members of the College saw Miss WORTLEY playing about the Room with the Small Pocks on her. He affirms, several Persons of Distinction could attest this Fact; and that one of the Physicians (Sir JOHN SHADWELL I have heard) had his Son as happily inoculated the following Month. The condemned Malefactors were inoculated in the Presence of many eminent Physicians, Surgeons and others, whom we must suppose sufficiently attentive

to the Progress and Event of it. Besides the same Operator inoculated eight others in different Parts of *England* the same Year 1721; and published Certificates signed by the Parents, Friends and Attendants of the Inoculated, attesting the Reality of the Disease resulting from the Operation. It were easy to accumulate Evidence on this Point from Dr. NETTLETON and many others; but what established it, beyond all Contest, from the Opposers own Concession, was their clamouring soon after, that the Inoculators * diffused the natural Disease; which was certainly their best founded Objection to it: since Mr. MAITLAND soon acknowledged, that six Servants of Mr. BATT's in *Hertfordshire*, whose Child he inoculated, and which they frequently caressed under it, were all seized at once with

* Tho' this may be certain, and I have known an Attendant thus infected from an inoculated Child, who had less than fifty mild Pustules, and scarcely any perceivable Smell; yet we cannot justly suppose, that any Number of the Inoculated emit an equal Quantity of circumfluent *Effluvia* with the same Number of Persons naturally infected, both Parties taken just as they present: since the Density of Contagion, in the same Extent, must be in Proportion to the visible Quantity of the Disease, and the perceivable Degrees of the variolous Scent. Miss TIMONI lay between her inoculated Brother and Sister, as the infected Servant did with my little Patient. Mr. BATT's Child was handled by the Servants it infected; nor is it very certain, that all or any of these Infections would have ensued from a cursory Look or very short Visit, which is often sufficient to catch it from a Patient naturally infected. Hence it clearly follows, that if every Subject annually seized with the Small Pocks in *London*, &c. was inoculated instead of being naturally infected, the Quantity of the circumambient Contagion must be less; and should it happen to be diffused over the same Extent of Atmosphere, that Extent must be less impregnated with the infectious Particles. Inoculating, where the Disease does not already exist, is differently circumstanced.

with the natural Disease, of which one died. He says they never suspected them to be catching, which it is too probable he affirmed to them; as he honestly acknowledges his Surprize at it, and that he did not think them so himself. It appears a little inconsiderate here, for a Person who had seen the *Pus* infuse the manifest Disease and its Symptoms, not to infer, that it might impart at least a gentle Degree of Infection, which the mildest Portion of the natural Disease has been supposed by some to do. But probably he inferred the contrary, from the *Greek* Woman's rejecting the Pock of the Inoculated. Nevertheless his Merit, in being an early Instrument in the Propagation of it, should qualify any of his Mistakes, which occurred during the Infancy of the Practice; especially when we consider, what his Share of medical Erudition probably was. Dr. NETTLETON and some others soon imagined, but without making a Point of it, that the artificial Disease transmitted a very gentle Infection, which happened to the Attendant mentioned in the preceding Note. But however that may be, which pretty certainly depends on the State of the Body receiving it, the learned and cautious Dr. FRIEND at length acknowledged his Conviction of its giving a true Pock. It is pleasant to observe, how those, who first denied this, came by Degrees to admit, that it gave something like it; at length to own that it gave the true Pock; and at last that it sometimes gave a favourable one. They appeared like compelled and unwilling Evidences,

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grumbling out their half Assent to the Truth: or, like the determined Defenders of a besieged Place, they did all that Obstinacy could effect, till the unsleeping Artillery of Facts beat them from their untenable Holds. Many Years have intervened, many thousand *British* Subjects have been inoculated; and at present our warmest Zealots against the Practice never hesitate to admit its imparting the genuine Small Pocks.

That the Peril, the Loathsomeness and Difficulty of it in this Way were greatly less than by the natural, we are positive no Person, who has impartially perused all our Ligitations on it, can doubt for a Moment. Its Continuance and Increase to this Period amongst us is such an Argument of its much safer and gentler Operation, as is equivalent to a Multitude of Testimonies that might be produced in its Favour. For, as I have elsewhere observed, it was impossible, from the Nature of Men and Things, that any Success, short of an extraordinary one, could have continued it down to us. A favourable *Ratio* of it, from the strictest Calculations, must have failed to repress the Counter-Efforts of Prejudice, Superstition and Obstinacy; and, I may justly add, of Faction too. Had it only appeared, that three, four, or even five died in the natural Way, for one by Inoculation (tho' the least of these Advantages were no contemptible one) it is clear with me, the greatest of them would not have established it with us so soon, and

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perhaps never. Rushing into the Embraces of a Distemper, as a Security from its worst Effects, had naturally something in it very indigestible and alarming at first: but the salutary Consequences of Inoculation have abundantly demonstrated of it, what was fabled of the Spear of *Achilles*, that it cures the Wounds it inflicted.

But tho' we require no Repetition of such Evidence ourselves, it may operate, by the divine Favour, to the future Preservation of many. TIMONI undoubtedly says the very utmost that can be true, when he affirms, that no one ever died of it; and this is the more surprizing, as he adds, that one half of those seized about the same Time, in the natural Way at *Constantinople*, died. Such a Disproportion must have converted the most obstinate Fatalist. He acknowledges indeed the Death of two of the inoculated, many Days or Weeks after the Termination of the Small Pocks; but attributes the *Catastrophe*, in both, to other Diseases, or morbid Propensities, plainly existing when the Operation was *inflicted*, as I may term it *here*. There is some Degree of Candour in acknowledging the Facts, tho' not the utmost we could wish for on so interesting a Point. He should have observed, it was improper to inoculate them under such morbid Circumstances, which might probably have warded off a natural Infection. Were we to suppose Inoculation here an epic Personage or Character,

racter, and then to invest him with as much Wisdom as good Fortune, he must have declined, or deferred, these particular Conflicts, into which he seems to have been injudiciously compelled here. But if TIMONI himself prescribed these injudicious Inoculations, which does not appear, and is uncertain, the *whole* Truth required his embracing such a Mortification, as very few have the Fortitude and Generosity to do for the Benefit of others. We are to suppose however, that he knew no others who died in Consequence of it, which these may probably be said to do, and that he was informed none did.

PYLARINI'S Commendation of it, which corresponds very well with our Experience, says, seldom or never has any bad Consequence been observed to happen on this Occasion; tho' it has been performed on all Ages, Sexes and Temperaments. We have had Occasion to observe the Success of Inoculation in the five Malefactors (the sixth being inodored) under the most discouraging Situation and Circumstances, and tunnelled, as it were, with little Streams of *Pus*. But to speak summarily, we are informed by Dr. JURIN, that 182 Persons were inoculated in 1722, of which the Anti-inoculators affirmed two died. Their Death was certain; the Inoculators were for ascribing it to other Causes; but the fairest and shortest Way is to charge them to the Account of Inoculation ;

tion ; which makes the Deaths by it, for that Year, one in ninety-one. Dr. NETTLETON's accurate Account of the Deaths by the natural Disease then thro' many Towns in *Yorkshire* was, upon an Average, 19 out of 100, or very nearly one in five.

It were easy to transcribe the annual Events of Inoculation, and of the natural Disease from the Accounts Dr. JURIN annually published from the years 1721 to 1726 inclusive. But as Dr. SCHEUCHZER has added the Numbers of the Inoculated here in the Years 1727 and 28, and the Event of this Practice then to the former, we shall chuse to present our Readers with a summary View of its Consequences here for the first eight Years, from his Tables ; after observing, that the *Ratio* of Deaths in both Ways varied somewhat in the different Years.

A Table containing the several Ages of the Persons inoculated in Great Britain, from the Year 1721, to the End of the Year 1728; together with the Success of the Operation, in the same Manner with those published before.

Age.		Persons inoculated.	Had the Small Pocks by Inoculation.	Had an imperfect Small Pocks.	No Effect.	Suspected to have died of Inoculation.
Under 1	Year.	24	24	00	00	2
1	Year to 2	34	33	00	01	4
2	to 3	65	65	00	00	1
3	to 4	91	88	00	03	1
4	to 5	65	63	00	02	1
5	to 10	257	249	03	05	3
10	to 15	140	131	01	08	1
15	to 20	104	95	03	06	2
20 &c.		110	91	06	13	2
Age unknown.		7	6	00	01	0
Total		897	845	13	39	17

We shall just observe here, that the Deaths of all who were inoculated within that Term were one in fifty-two, or a small Fraction over 52; of those who took an incontestible Small Pocks (since it had no Effect on 39) one in 50, or a small Fraction under 50: and if we add the 13, who are considered as having had an imperfect Small Pocks, the Deaths will be one in 50, with

with much such a Fraction above it. It is remarkable however, that we never heard of any one of the last having taken a subsequent Infection. We shall transcribe nothing advanced by the Advocates for Inoculation, nor even by any Moderators in the Controversy, to prove, or to attempt to prove, that the Deaths of some, or of any one, failing after Inoculation, ought to be ascribed to any other Disease or Indisposition; or even to any previous natural Infection, to which it is certain some of them had been exposed. During the same eight Years the Deaths by the natural Small Pocks were, *communibus annis*, by Dr. SCHEUCHZER's Tables, one twelfth Part of all the Deaths occurring within the Bills of Mortality.

The Rev. Mr. MATHER's Letter to Dr. JURIN dated March 10, 1721, supposes 300 inoculated in and near *Boston, New England*, out of which he says five, or at most six, died, which he is very willing to impute to previous Infection, or other Circumstances. But we shall find by the following Table from Dr. BOYLSTON there were 18 less inoculated: except we chuse to apply twenty or thirty more (which Capt. OSBORNE says he supposes might be inoculated, but of whom he can give no Account) to make up the 300 computed by Mr. MATHER.

<i>Their Ages.</i>	<i>Persons inoculated.</i>	<i>Had the Small Pocks by Inoculation.</i>	<i>Had an imperfect Small Pocks.</i>	<i>Had no Effect.</i>	<i>Suspected to have died of Inoculation.</i>
From 9 Months to 2 Years old. }	06	06	00	00	00
2 to 5	14	14	00	00	00
5 to 10	16	16	00	00	00
10 to 15	29	29	00	00	00
15 to 20	51	51	00	00	01
20 to 30	62	60	00	02	01
30 to 40	44	42	00	02	01
40 to 50	08	07	00	01	00
50 to 60	07	06	00	01	02
60 to 67	07	07	00	00	01
Total Inoculated by Drs. Roby and Thompson in Roxbury and Cambridge. }	244	238	00	06	06
	36	36	00	00	00
Total Two inoculated by Boylston after his Table was printed off }	280	274	00	06	06
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	282				

This makes the *Ratio* of Mortality by Inoculation in *New England*, in the Year 1721 and 22 exactly one in 47 : but to be impartial, it is not unlikely that some of the deceased might be previously

viously infected, as they were considerably exposed : and if we turn our Eyes to the Ages of some of the Inoculated, we shall not be surprized to find the *Ratio* somewhat less favourable in *New England* than in *Old*. *Boylston* informs us that in 1721, and the Beginning of 1722, 5759 Persons had the natural Small Pocks in *New England*, of whom 844 died. The Numbers inoculated in *Old* and *New England*, within eight Years from the Introduction of the Practice, were 1179, of whom died 23, or one in 51, with a small Fraction above 51. And as the natural Disease, on a fair Allegation, carried off in both Countries, during that Term, full one in six ; there must have died by it, out of the above 1179, supposing it to have treated them as it did the rest, full 196, from which deducting the 23 deceased, 173 Lives will remain as the Number preserved by Inoculation. But we must remark, that some Allowance is to be made for 45 in both the Tables, on whom Inoculation had no Effect. And this may suffice as an impartial Exemplification of the good Effects of that Practice in its Infancy, as we may say, amongst us.

Notwithstanding which, as a Son of the DUKE of *Bridgwater's*, and another of the EARL of *Sunderland's*, with a few others of Condition, were among the Deceased, the manifest Advantage of the Practice seemed insufficient to extend it, or even to maintain its Ground : since we find a Dormancy or Stagnation of it for some ensuing Years, and no Person continuing the annual Account

count of its Events, which some probably would have done, if any thing like the former Numbers had annually submitted to it. This is sufficient however to demonstrate the much greater Influence, which the Recovery or Loss of a Person of Birth and Rank may have upon the Fate of any Practice, than its good or bad Event among People in humbler Life; while that of the meer *inops, inhumataque turba*, the meer Populace, is little heard of, and less adverted to: But tho' the Death of Persons of Birth and Condition, where their Virtues and Abilities correspond to their exalted Situation, be certain and signal Losses to any Kingdom or People; yet Physic, which implies Philosophy, and does not consider Heraldry or Station among its essential *Praecognoscenda*, can only estimate the general Convenience or Inconvenience of any medical Practice, from the Numbers that recover, or fail, by it; or, as our homely Phrase expresses it, merely by telling Noses.

But to come to later Times and a different Climate, the Small Pocks was brought from *Africa* into *South Carolina* in the Spring of 1738. And it was very generally agreed, by the Friends and Opponents of Inoculation, after the Disease had finished its Course there, that 1000 Persons white and black, young and adult (tho' the Want of an exact Register is truly to be regretted) had undergone the Operation there. In 1743 I published a small Essay at *London* on this Practice, subjoining an *Appendix*, which contained

tained the most faithful Account of its Event abroad, for which my Memory of so recent an Occurrence then tolerably qualified me. This, I have heard from different Persons, had been of some effectual Tendency to revive the Practice; whence I have the Satisfaction of considering myself as an Instrument, however remotely, of the Benefit which many have since received, from a judicious Application of it, by others. To be certain of avoiding all Exaggeration, I estimated the Subjects of Inoculation but at 800; tho' Mr. MOWBRAY, who introduced it there, assured me, he had inoculated full 450. Four other Practitioners soon abetted, and were liberally employed in, the Practice: a fifth at length acceded, and one entirely declined it from religious Scruples. That Performance contained a very summary Account of the Cases of four or five out of the eight Patients, who died after Inoculation: but as I am since convinced I omitted one, tho' very unconsciously, I embrace this Opportunity of rectifying that Omission. Yet as every one from that Province thought the Number of the inoculated under-rated, I presume it will not be unfair to conclude, on the whole, that one died out of every hundred inoculated there; or supposing but 800 inoculated, it will be as one in 89. And if it be considered, that a great Majority of these were thus voluntarily infected during the raging Heats of *June, July, and August* in a Climate, where the Sun is within nine Degrees of the *Zenith* at the Solstice;
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and in a sandy, flat and marshy Situation, during which Term the natural Disease certainly killed at least every fifth it seized, the *Ratio* will be greatly in Favour of the Practice. That the Inhabitants were fully convinced of this is manifest, from few, very few Subjects of this Disease having arrived from thence into *England* since that Time, without submitting to the Operation. As well as my Memory serves me, the Small Pocks was carried into *Philadelphia* in *Pensylvania* a few Years after this, where the general Event of Inoculation was said to be still more benign; but having had no authentic Information of Particulars from any Eye Witness of the Facts, I only mention this general Rumour, which I never heard materially contradicted. The general Estimate of the *Tripolitan* Ambassador here, in the Reign of *GEORGE* the 1st, was, that not two died out of each Hundred inoculated at *Tripoli*; but thirty out of every Hundred naturally infected.

Dr. MEAD assures us, in his Chapter on this Practice, it was certified to him by a very creditable Witness, (1) that a Gentleman in *St. Christopher's* inoculated 300 Slaves himself, from the Age of five to thirty, without losing one. Such Accounts reflect some Credit on TIMONI's Report of its unfailing Success at *Constantinople*. Our Information of the Event of the Small Pocks in *New England* a few Years since makes 5059 white Persons naturally infected, of whom 452

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died,

(1) De Variol. P. 80.

died, which is, to avoid a Fraction, one in eleven, no unfavourable Proportion. Of 485 Blacks seized naturally 62 died, or full one in seven. Of 1970 Whites inoculated 24 died, or one in 82; of 139 Blacks 7 died, or very nearly one in 20; a very unusual Mortality indeed by Inoculation; and which might induce us to subscribe to Dr. MEAD's Observation of the *Africans* being more fatally obnoxious to this Disease; were it not strongly contrasted by its extraordinary Success among them at St. Kitt's; and did we not find in Dr. SCHEUCHZER's Pamphlet the Death of three out of twenty-five inoculated at *Dublin* in the Years 1723, 24, 25, and 26, the much greatest Proportion then ever known. We are informed indeed that two of the three were very sickly, one but fourteen Months old; but such Circumstances, tho' mentioned to exculpate the Practice, effectually accuse the Practitioners of it, under them. The Numbers of the Inoculated then in these three different Parts of *America* were 3209, of whom 40 died, or one in 80. Neither the Date of the Year, nor the Mortality of the natural Disease at St. Kitt's, are specified; but if we suppose it altogether in *America* as one in eight (the Medium between a fifth in *Carolina* and an eleventh in *Boston*) a natural Infection must have destroyed, instead of forty, 401, whence 361 Lives may very probably have been preserved by Inoculation at those Times and Places.

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This Preservation of Life being the interesting, the cardinal Point, let us recurr to *Great Britain*, since the late general Revival and Extension of this Method, where we shall find the Advantages of it extraordinarily augmented. Several Years since a very worthy and ingenious Physician at *Winchester* informed me by Letter, that in several Towns of *Hampshire, Sussex* and *Surrey*, about twelve Years ago there were near 2000 inoculated, of whom two only died, both pregnant Women, and admitting the Operation contrary to the Opinion of their Physicians. Since this Revival of the Practice too we find, according to a Note to the late Bishop of *Worcester's* Sermon, that three very eminent Surgeons had inoculated above 1500, with the Loss of three only. Serjeant RANBY has inoculated upwards of 1000 of these, out of which, I had his own Authority, that he never lost one. The other Gentlemen were Serjeant HAWKINS, and Mr. MIDDLETON, Surgeon General to the Army. Of 134, mostly Adults, inoculated at the Inoculation Hospital in 1751, and a few Months of 52, there was not a single Failure. Mr. WINCHESTER, late Surgeon to the *Foundling Hospital*, informs me, that 136 of the Children have been inoculated, of whom but one has died. In his private Practice, which he assured me, amounted at least to 370, he said, he had lost only a single Patient.

And here I must beg leave to digress a little on the Objections of some who are averse to Inoculation,

tion, and the Surmizes of others who are not, which suppose the Inoculators, in their long Catalogues of Persons succeeding by it, to have omitted either the whole, or the greater Number of those, who have miscarried. To acknowledge the whole Truth on this Occasion, some of those immortal long Lists, without a single Exception, have exercised my utmost Faith ; and I have left the Numbers recovered, as affirmed to me, to depend on the Credit and Veracity of the Relators : tho' I firmly believe no such Numbers of Miscarriages, as would importantly lessen the great Advantages of this Practice, have been or could be suppressed by the Inoculators. I confess too at the same Time, that my serious Reflections on this Head have prevented my enquiring more importunately, into the Numbers inoculated by the several Practitioners of every medical Department throughout these Kingdoms ; who would be equally at Liberty to answer my Enquiries, as each thought it convenient, or to censure them as officious and impertinent. Indeed I recollect, that on ruminating on this Point myself, I once imagined, it might be even better for the Publick, upon the whole, to remain unapprized, and, as it were, wholesomely ignorant, of every Failure by this Method. But in this Imagination I could not acquiesce, having determined never to suppress any such Failure under my own Conduct ; as I maturely conclude, Mankind have a strict Right to an impartial History of all its Consequences, that they may calculate both the Advantage and the

the Risk, for *some* Risk there certainly is, whatever the Love of Mankind may have induced the Benevolent to hope or affirm to the contrary. And I am certain that such a History of it, as there could not be the least just Pretext to charge with any Suppression, would prove the most effectual Means of extending the Practice, and of improving it also to the utmost human Perfection; if every Case that miscarried, with a just Description of the Patient in every pertinent Circumstance, and an Account of his Preparation and Treatment, were faithfully represented.

But besides the deceased supposed by the Anti-inoculists, to have been absolutely left out of the Inoculators Lists, the former also charge these with an Endeavour to screen the Practice, from having occasioned those Deaths which are acknowledged; by charging them to other Diseases, or to some unhappy Combinations and supervening Circumstances, in Acquittance of Inoculation. Dr. HAEN makes the most of this Indiscretion, not to call it the Insincerity, of the Inoculators; and observes very justly, that this Manner of arguing away the fatal Events of Inoculation, must be equally extended to those of the natural Disease; or if denied, must be denied to both. Assuming it therefore he proceeds, with some pleasant Ridicule and Exaggeration, to acquit the natural Small Pocks, from having killed a single one of the five only, which he lost out of 220 Patients in it. Not to detract in the least from this ingenious Physician's Skill and Address in this Disease,
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the Small Pocks of that Season must have been of a very uncommonly benign Disposition: it was such as a Man would have wished his Friends, and their Friends again, if of a proper Age, &c. to have been inoculated in. Had Dr. HAEN himself practised it at that very Juncture, it is not likely he would have lost above one in 750, perhaps not in 1000, by which he had saved from 16 to 22 Lives: which it being his Duty, as a very conscientious and able Physician, to save, we shall rejoice to hear he has discharged it, the next equally mild variolous Epidemic in *Germany*. This may repair, in some Measure, the present Carnage by War there; and also extinguish his Prejudice against Inoculation, merely by Eyesight, which has effected the same Conversion in many others. But whatever his maturest Reflections may urge him to in this Respect, we acknowledge there have been too many Efforts made, to disguise and explain away these few sinister Events. Perhaps one Cause of them has been the little Regard had to a due Consideration of the fittest Subjects for Inoculation; or to a proper Preparation of those who were less fit, which has often been decryed as unnecessary or hurtful, from no benevolent nor publick spirited Motives. This Conduct has occasioned no small Disagreement, between some of the most enlightened Approvers of this Method and some Practitioners of it; which last seem to conclude that Time unprofitably delayed, which delays their Reward; and so keep driving on to extend their Lists, with an *Occupet extremum scabies—ne te sit ditior alter*. But

But to the Point, among many combined Diseases that have been accuied here, Worms perhaps have been the ofteneft, from the frequent Inoculation of Children. This has been mentioned to me as the fatal Cause in more than one Instance ; but as it has also been acknowleged in Print, I fhall only cite a fingle one from Mr. (now Dr.) FREWIN, who affirms, in his Theory and Practice of Inoculation, he has inoculated 300 in *Suffex*, of whom but one died, which he endeavours to attribute to a Worm Fever. But admitting his Veracity with regard to the 299, this Endeavour were better omitted. For each deceased Individual fuppreffed, which the Oppofers of Inoculation fhould discover, they would readily fuppose a Dozen, if not a Score, which they would conclude to have been effectually concealed from them. And for any Attempts to afcribe the known Fatalities to other Causes or Accidents, they have been, in general, truly frivolous and contemptible : For if the inoculated Small Pocks were fupposed to excite the before inactive Cause of fome fatal Disease in the Habit ; or fupposing it only to introduce a Delirium that occafioned the Patient, if unwatched for a few Minutes, to jump from a high Window, and dafh his Brains out ; tho' Inoculation could not be faid *directly* to have killed him, it muft be allowed to have principally *conduced* to it, and to have been the *caufa caufæ*, as they term it, of his Death. In fhort fome Inoculators have been injudiciously bi-gotted in thefe Refpects ; when the plain *Ratio* of

Mortality by the natural Disease, and the Loss of every Individual, who died from the least apparent Consequence of Inoculation, are sufficient to convince and determine every Man in his Senses. A Letter from *Salisbury* in 1753 informed me 422 had been then inoculated there, of whom four died. Now if we suppose the Number of near 2000 inoculated in *Hampshire*, *Sussex* and *Surry*, as it is indefinitely expressed, to be certainly 1500, the Numbers of the Inoculated mentioned in this Paragraph and the next but one above it, will amount to 4412, of whom the 12 died in Consequence of Inoculation, being one in 367 at the nearest. And as Self-love is much stronger than public or social, perhaps it will admit of no long Debate, whether the Members of Physic, taken altogether, would desire the Hazard by Inoculation to be less: as Navigators are said to apprehend every Body's commencing such, on the Discovery of the Longitude.

I shall not dissemble my Knowledge, however, that a few more than those admitted to have failed in the former Paragraph, have miscarried in and near *London*, during this general Success of the Practice; besides some few I have heard of at a greater Distance from it: nor shall I conceal my private Belief, that a few more than I have heard of may have also failed under it. The four or five Years occurring between these Editions have

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* These Numbers were erroneous in the former Edition, being there said to amount to 4252 — to 10 — and to 425.

not been more exempt than the former, especially the Year 1759, when the natural Disease was much severer than usual. This, altho' not in a more unfavourable *Ratio* than common, had its Influence in Proportion on the Inoculated, as breathing in the same Part of the Atmosphere. In truth, there is little Doubt, but that even in those Seasons, when this epidemical Disease may be attended with no more than its ordinary Mortality and common Symptoms, a few Failures will occur, sufficient to mark the Fallibility of the best human Judgment, in a very large Application of it. But it would be a very strange Objection to this Practice to assert, that because we cannot certainly preserve every Subject submitting to it, we ought not to preserve as many as it may, and, under the divine Favour, undoubtedly has preserved. We confess our Apprehension at the same Time, that this Security has not been ascertained amongst us to its utmost possible Extent, thro' the Temerity and indifferent Qualifications of a Few, who have too crudely, and with too little Precaution, hurried on the Practice of it. Hence have probably resulted within these four or five Years, taking the whole Kingdom together, a few more Miscarriages than usual, and of course more Assiduity to evade or conceal them. It is but too natural to suggest, that wherever the Love of Money was the ruling Passion, every such Practitioner would carefully avail himself of every Circumstance, that might suppress or disguise such an ill Event, as would probably contract a valu-

able Branch of Practice. But as several of the Populace, tho' in a much less Proportion than at first, are still averse to this Practice, we must impartially infer, that their Exclamation on its ill Success, and the Concern of the Relations and Friends of the Deceased, would very generally defeat the utmost Endeavours of the unsuccessful Practitioner to conceal it.

But we shall have no Right nor Colour to apply such Deceased, in Deduction from the favourable *Ratio* of Inoculation just specified; since we have not specified the Numbers inoculated by the same Persons, and recovered, to oppose to those who failed, we will not say from, but under, their Conduct. It is rather fair to suppose the Recovered in the usual *Ratio* of Inoculation. I was informed by a strict Account in 1753, that they had inoculated 309 at *Blandford* in *Dorsetshire*, of whom three died. What they must have saved then will not be very difficult to compute. A Gentleman from *Oxfordshire* assures me it has been equally successful there. I have heard of many, indefinitely, inoculated in *Scotland*, within a few Years past, but of none deceased by it. I have heard the Practice is become very familiar in *Ireland*, and with a Success very different from its earliest Events there. The ingenious Mr. SHARP, Mr. POTTS and many other eminent Surgeons within the Bills, have doubtless inoculated great Numbers successfully: Persons of inferior Note have not been without many Patients in the Method; and I might specify not

a few I have fortunately attended here myself (except a young Negro Man mentioned Note † P. 63) all which must superabundantly over-balance the Deceased by it, who may not have been named. And here it must be high Time to refer the different Peril, by natural and artificial Infection, to the Solution of our Readers, on the Amount and Credibility of the Evidences produced ; which may at least save others the Trouble of compiling, as we have done, in order to compare the future Success of Inoculation with the past.

An Abatement of the Difficulty and Loathsomeness of the Disease, in Proportion to the Abatement of its Fatality, may be obviously inferred. But were a formal Proof required, it is considerably anticipated by the Evidence already produced to the Solution of those Queries, with which it is blended. The Inoculators, the Patients, and their Attendants are so clear and unanimous on this Point, that I shall content myself with repeating here what I have abundantly seen and formerly said, ‘ That it were endless to recite the Cases of those who recovered in a very easy unloathsome Manner : the very List would be tedious and swelling, and, without any Injury to Truth, it may be affirmed, they were nineteen twentieths of those who admitted the Operation.’ This evidently supposes at the same Time, that all the Inoculated were not indiscriminately visited with equal Lenity, which was generally varied in Proportion to the Quantity of Eruption, as in
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the natural Disease, But a long Experience has made it very clear to me, that in equal Degrees of Eruption by Nature and Art, the Symptoms attending the latter are remarkably lighter: where there is such a Quantity by Inoculation, which sometimes happens, as to dispose to a secondary Fever, of which I have seen a few Instances, the Ruffle is lighter, and its Duration less: and if about the ordinary Term of its Approach the Incisions discharge more copiously, which they pretty generally do, there is very seldom a perceptible one, however plentiful the Eruption has been. On this Occasion I have ventured, **tho'** with much Respect to his Memory, to dissent from the late experienced Dr. MEAD, who thinks the Discharge from the Incisions (which yet he inculcates us to promote) and the Suppuration of the Pustules frequently crouding about them, too little to be of much Service in the Disease. For if it shall appear that the Discharge from the Orifices, on the Maturation of the Pustules, is often sufficiently variolous to convey the Small Pocks; and that Discharge has been observed by many Physicians and Surgeons to be considerably free in those, who have had the least Eruption and mildest Symptoms, we cannot well conceive the Discharge of such variolated *Pus*, at a critical Season, as insignificant to the Patient, when we reflect how small a Portion or Particle of it will infect. And this Circumstance may possibly be no ill-founded Exception to that generally true.

Hippo-

Hippocratic Axiom of (a) no small Discharge being critical ; for tho' the visible Quantity be comparatively small, its Contents are innumerable and potent. The frequent Vanishing of several troublesome, and sometimes even threatening Complaints, upon a small Eruption about the Lips, may also be pertinently considered here.

With Regard to the last Query, tho' we might very consequently assume the future Security, in general, of those infected by Art; yet since the Contrary has been affirmed in Print a few Years ago, we proceed to a Discussion of it. To recur here, as we have frequently done, to our first Instructors, PYLARINI says, that tho' the Inoculated had but a few Pustules, they escaped future Contagion. TIMONI says still further, there are some in whom no Pustule arises, but the Places of Incision swell up into purulent Tubercles ; yet these never had the Small Pocks afterwards, tho' cohabiting with those infected. Our first Proof of the Security of Persons who had formerly the Disease, from a Re-infection by Art, was prudently made on *Richard Evans*, one of the seven Malefactors, who having had the natural Small Pocks in Prison the Year before, was inoculated with five others, by 3 Incisions abundantly imbued, and thus became the Subject of an *Experimentum crucis* on this Occasion. Mr. MAITLAND informs us, that on the seventh from Inoculation he had no manner of Pain, Heat, or Redness in
any

(a) Ὁυδέν ὀλίγον καὶ λίαν.

any of his Incisions, nor any Alteration otherwise; but that all of them, continuing pale from the Beginning, dried up on the sixth. And that this Indemnity was equally certain, from having past through the artificial Disease, is evident, from authentic Certificates, that *Elizabeth Harris*, one of the inoculated in *Newgate*, soon attended two Patients in the natural Disease in *Hertfordshire*, without receiving the least Infection: And when *MAITLAND* published his Vindication against *WAGSTAFFE*, she had attended above 20 with equal Security. *Dr. NETTLETON* says, the Inoculated have afterwards attended others in the Disease; and that often Children who had been inoculated lay in the same Bed with others in the natural Distemper, and all the Time of it, without Infection. To my own Knowledge *Miss BAKER*, of twelve Years of Age, having been effectually inoculated, some Weeks after her speedy Recovery, made a fresh Incision; and, with the Assistance of a young Lady, applied fresh Pock to it three successive Mornings. About the eighth Day she felt her Head ach slightly, and being frightened, revealed the whole Process: but after lying down a little in her Cloaths, she sprung up saying, she would not be sick any longer, her Head-ach quickly vanishing, and no Fever, nor the least Eruption or Disorder ensuing. Now tho' the Event demonstrated the susceptible Fuel to have been expelled by the first Inoculation, yet the *Pus* she so repeatedly infused was heterogeneous

as Matter, or suppurated Blood, and might excite some little Disorder, previous to its Expulsion: and this probably the Matter from a simple *Pblegmon* or Boil would do. But with Regard to the Small Pocks, its Seeds here were sown in an exhausted Soil. In brief, as Dr. NETTLETON justly says, the *Quomodo*, the Manner, of Contagion makes no Difference in the usual Indemnity: and the Continuance of the Practice to this Time is at least twenty thousand Evidences of the Truth.

And yet so unaccountable were the Operations of Bigotry and Malevolence (an Error and a Crime that too often concur) that in order to strike at the Root of this Practice, and thence deprive their Fellow-subjects and their Species of such a manifest Security from this Destroyer, many wicked Rumours were spread of the Reinfection of the Inoculated; for wicked they must have been in the conscious Contrivers. One Report, that a Patient formerly inoculated had died afterwards of the natural Disease, produced a Letter from Dr. NETTLETON to Dr. JURIN, absolutely disavowing the Fact, but acknowledging the Death of an inoculated Infant of fourteen Months old. I have heard myself a great many Rumours of the Inoculated being naturally infected afterwards, which, upon Examination, always proved just as many Lies. But there never was a malignant one more impudently propagated, than that printed in an Appendix to Dr. CLINCH's historical Essay on the Small

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Pocks.

Pocks. This was in a Letter from one *Jones* a pretended Surgeon at *Oswestry* in *Shropshire*, which affirmed, ‘ he had tried Inoculation (which
 ‘ he could not approve) on several, and especially on a Child of two Years old, whose
 ‘ Small Pocks appeared in a Fortnight, and she
 ‘ did well. But that in three Weeks after she
 ‘ sickened again of the Small Pocks, which came
 ‘ out as thick as ever was seen, but that at last
 ‘ the Child recovered.’ This malevolent, and, as it appeared, ignorant Hypocrite did not hesitate to repeat the tremendous Name of GOD thankfully for his Blessing on this fictitious Inoculation, which was never performed. For on Dr. JURIN’s writing to Mr. PARRY, Clergyman of *Oswestry*, and to Mr. TOMKIES a Surgeon there; though *Jones* solemnly averred the Inoculation to have been performed on a Child of his own, he would not shew the Incisions, name the Person from whom he took the Infection, nor directly answer any of Mr. PARRY’s Queries; but told him, that if Dr. JURIN would give him a *handsome Reward*, he would come to *London*, declare the whole Truth, and bring Witnesses to prove it upon Oath; which the Doctor prudently declining to give, on a further, and we may suppose, a more earnest Expostulation of Mr. PARRY’s, he sent up, in a most ignorant, mispelt, and nonsensical Epistle to Dr. JURIN, a Confession, that he never inoculated any one in his Life, which indeed any Person may credit, even on his own bad Evidence. We have printed

ed the Scroll *literatim* at the Bottom of the Page as a Curiosity, and the very Quintessence of Ignorance. Moderate and common Absurdity is generally dull, but proves ridiculous enough in the Extreme to afford a momentary Diversion.

And indeed it may be justly affirmed, that a considerable Majority of those, who were thus

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Letter from Mr. JONES to Dr. JURIN (printed literatim from the Original.)

S I R,

HAVEING considered vpon the Affaires of your Desire and cannot find my Self Able nor Capable to giue you Tru Account of the Inoculation of the Small Pox, nor am Soe well Instructed in the Art to Explain the Terminations to be publish'd, nor neuer did Designe or Desire it: but what I write was to my Son being he sent to me to Know my oppinion of the Inoculation: being his children have not had the Small Pox Then: and being it was to him in a Way of Presvation may be there is Some thing in the Letter more than all Truth: and all the Account That Euer I gaue was to him and noe Man Els: but neuer did I Design or Desire to make any Thing publick that was in it: how it came to you I cannot Tell: I am Sure it did not come vpon my Account: to Any man alive but to my owne Son and not to him to make A publick Game of it: but he Shall Loose more by it Then euer he can gain by Them that he gave Account of it. but what foollish fancy that was in his head I cannot Tell: If I had any Thing that was worth the publishing I Should write It Down with my own hand and witness to It. and Derection to you or Some other gentlemen for to giue There Assistance to publish it but, as for Really Inoculation I cannot giue you Account of it: for I am Ignorant in it for I neuer Saw it Done by any man In my born Days but what foollish Inuention I had in owne head I could not bring it to perfection and neuer gott a hapeny by nor neuer shall: Therefore I haue nothing to Say neither to the one or to the other but pray God to blefs you all

Your Servant,

DA. JONES.

I cannot Say that I have Inoculat my owne Child nor any body Els because I do not know what Reall Inoculation is

Ofwestry, March

DA. JONES.

11, 1725-6.

vehemently prejudiced against Inoculation were, like Mr. Jones, of the meer Multitude; or as Mr. DUMMER pleasantly termed the Exclaimers against it in *Boston*, of the *confluent Sort*. The last impotent Attempt to revive this Prejudice, of a second Infection of the Inoculated, was in a Pamphlet intituled *Several Cases in Physic*, with the Name of a sage Fellow of the College prefixed to it. But as that Imposture was seasonably exposed, it recorded this imaginary Re-infection less effectually, than the certain Errors and Prejudices of its concealed Author.

Nevertheless, as we have admitted P. 43. that Inoculation, when it took, was just an equivalent Protection from a second Infection with the natural Disease, and no more: and as we have briefly stated the Evidence for and against such Re-infection from P. 36 to 42, supposing, in Respect to some few of the Authorities produced there, a *possible*, tho' very rare, Re-infection; so we shall here as impartially relate and submit a recent Case on this Point, to the Consideration of our Readers.

Mr. JOHN MOTTE born in *South Carolina*, about 20 Years of Age, of a somewhat darkish Complexion, and seemingly tense dry Fibre, was inoculated in *London* by Mr. LEE, Surgeon and Apothecary, *July* the 1st, 1757. I saw him the following *December* visiting a Patient of mine recovering, by Inoculation, from a large Crop of the distinct Small Pocks. Mr. MOTTE had not a single Pit from it, saying, to the best of my
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Recollection, he had only eight small Pustules, and adding, he had never been sick, nor confined to his Bed for it. * I remember I replied, he had been very fortunate, and that I should have had a considerable Anxiety about him, had I been to inoculate him. He seemed assured himself, and had been assured by his Surgeon, that he was intirely secure from a second Infection; he received none at this Visit, which was not a very short one, and I believe was more than once repeated. The Small Pocks were brought into *Charles-Town* in *Carolina* in 1759, where he then resided, and were, generally, of a severe kind. He is said to have exulted so much on his supposed Indemnity from it, as to have exceeded his usual Way of living, and went every where to visit his Acquaintance who lay down with it; untill at length he sickened violently, and died of a severe confluent Small Pocks. Now if he was infected in *England* by Incision (and I really took him for
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* Mr. LEE's Relation of this Case to me is — That Mr. *Motte* was inoculated at the Time above mentioned in the left Arm. That the Orifice inflamed a little, and that the Discharge was but small. That the Matter with which he was inoculated was only four or five Days old. That on the seventh from Inoculation, he had a very slight Fit, (or rather *Vertigo* perhaps;) for when Mr. LEE attended him immediately on Notice of it, he found him without any Complaint, but was told by him, that he had felt an odd unpainful Giddiness, which he supposed did not last one Minute. His Pulse was quickish, as this Gentleman expressed it, the 8th and 9th Day (from which we are to suppose but the slightest perceivable Degree of Fever) That on the 9th he had two Pustules in his Face, one of which he thinks contained Matter. That he had five small ones round the Incision, and noothers were discovered all over him. That he purged him the 15th, and supposed him secure from a subsequent Infection.

the very susceptible, inflammable Subject he finally proved) he must have been one of those very few Subjects extraordinarily constituted for a Reinfection. If he was not infected by Inoculation, and there had been no Defect in the Operation or Matter, it will argue, that the same Body may be so variously disposed for this Disease at one Time, as to expell or eject it, even when brought into Contact with the Blood by Infusion ; and at another, to imbibe, or, as it were, violently to attract its *Effluvia* by common Infection. The Case however, at all Events, is pregnant with this practical Caution — That those of the Inoculated, and those only, who have had but a very light or doubtful Degree of the Small Pocks, should rather decline visiting the infected, especially such as labour under a Confluence, and, about or soon after their Suppuration and Scabbing ; and by no means live at a higher Rate than usual, nor expose themselves to violent Heat or Exercise during the Contagion. Their Visits even to the most favourably infected, if they will hazard them, should be short, cautiously timed, and seldom repeated. The Nurse said to have been mortally infected, at the third Time, (see P. 38, 39) had attended a Patient in a severe Degree for three Weeks, scarcely ever leaving his Room. Miss TIMONI, * whose Disease from Inoculation was more certain and evident than Mr. Mott's, slept with her inoculated Brother and Sister throughout the whole Progress of their

* See P. 43:

their Small Pocks. I was informed in *Paris*, that a delicate handsome Youth at *Lyons*, in Order to preserve his Beauty as well as his Life, was inoculated four Times without Effect; but that persevering to a fifth, he received such a confluent Disease, as effectually spoiled his Beauty, tho' it spared his Life. The first two * Cases [Mr. *Mott*'s Infection by Art seeming not quite certain] would suggest to us, that possibly a long, and nearly continual Exposure to the Scent and Vapour of the Small Pocks, may, in a very few particular Bodies, regenerate, as we may say, that native Fuel for them, which had been consumed and expelled by a former Infection. The latter Instance at *Lyons*, if Fact (for not hearing it from an Eye-Witness, and probably several Removes from one, I listened to it as a variolous, and problematical sort of Rumour) would hint, that repeated Infusions of the infecting Matter into the same Subject, may possibly be capable of generating that internal Principle of this Disease, which Nature herself had omitted at the Conception, and throughout the Formation, of the *Fætus*. This would so abundantly realize the Axiom of *Habit's being second Nature*, as to make the *second* able in this Case to exceed the Intentions of the *first*; besides an apparent Inference, that the Quantity and Duration of variolous Contagion may be important and essential. Nevertheless

* I have also heard that Lady *Morris*, who failed of Infection from the first Inoculation at *Bath*, died of a second sometime after; which I think has been said to be the Case of Mr. *Scarven* several Years ago.

theless it was evident, that *Richard Evans*,* the Malefactor, who had the natural Small Pocks a Year before, and who was inoculated by three Incisions repeatedly filled with fresh Drops of Matter on different Days (which seems to have been no unfair Tryal) was not re-infected by them. Supposing however, that instead of three Incisions there had been thirty, and the Matter had been infused in a tenfold, or in any greater Quantity; Can any Physician, not having made such an Experiment, positively foretell its certain Consequence? I perceive my own Inability to do it, to my own Satisfaction; tho' I am apt to imagine, from the common Axiom of *Omne nimium malum* (besides what I might infer from Miss BAKER's Case, See P. 144) that some considerable Commotion must ensue from it, even in an exempted Constitution. Now a very long Inhalation of great Quantities of the variolous *Effluvia* may easily be conceived to act sometimes in the like Manner: yet that it does not very often, if ever, do so to Effect, I am one Proof, among a few Millions more: so very generally and so strongly tenacious is Nature of her settled Principles of Action. At the same Time we must observe, that by Re-infection here, we only intend that repeated internal variolous Infection, to which a human Body is supposed, by some Writers, to be *naturally* liable; and which may be conceived in Theory, by many who have never seen it in Fact; not that Repetition of it, which, we cannot

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* See P. 143

certainly aver, they may not be forced, or tortured into, by the Efforts and Aggravation of Art.

It being evidently proved then, that Inoculation produced the genuine Small Pocks: that, being so produced, they were attended with much less Peril, Difficulty and Loathsomeness than the natural: and that those thus infected were just as secure as by the natural Disease, from all subsequent variolous Infection; it only remains to observe here, that the Opponents of Inoculation were better warranted in affirming, it did not *always* give the Small Pocks. This deserves our considerate Retrospection, in order to suggest, what Persons so circumstanced may reasonably apprehend for themselves. PYLARINI says, that such of the Inoculated as had no Eruption, were infected promiscuously with others, when the Distemper proved epidemic. Out of the 474 inoculated here by the End of 1723, twenty-nine were not infected. Dr. NETTLETON admits that two of his Patients missed, one of whom taking the natural Disease a Fortnight after, he imagines to have been inoculated with a stale inefficacious *Pus*, which had been taken when the Pustules were withered and almost gone. In *Boston* six missed. In *Carolina* I saw one white Person and three Slaves who did not take (one of whom I inoculated) and heard of another. One of the three has lived three Years since in *London*, never avoided the Contagion, and never took it. Miss BRUCE of *Mark-lane* was inoculated by Mr. SAVAGE 1751. I visited
X her,

her, the Incision inflamed considerably, but discharged little. She had a Fever the eighth Day, which continued 36 Hours, and sweated profusely; for having a very free transpirable Surface, every little Cold, and all her few Complaints, generally terminated that Way. She had, some little Time before sickening, a small Pustule with Matter on her Tongue, and afterwards a very little one yellow-pointed, rather than headed, close to one Extremity of her Mouth, which left an obscure Pit. She had no other Eruption that could be considered as variolous, if this uncertain one might, but was purged repeatedly about the usual Term of purging after the Disease. On the Termination of her Fever she continued, thro' the whole Course of her Confinement, as lively as ever.

The Case of Master HOPKINS (Son of Mr. HOPKINS Druggist) whom I inoculated at about the Age of seven Years, with his two Sisters, *March*, 1759, is remarkable. His Incision was nearly dry on the Fifth from Inoculation, when, after a slight Belly-ach, he had a large natural Sweat, which made him quite easy. On the Sixth it was entirely dry, with a very obscure whitish Line; and on the Eleventh, having continued all that Interval free from all Complaint, fresh Matter taken that very Morning was applied to the former Incision, which was scratched 'till a very little Blood appeared. That same Evening he complained as on the Fifth, but sweated, slept well, and was perfectly at Ease

next

next Morning, without any Inflammation about the Orifice ; and never had the least subsequent Eruption nor Complaint, tho' he slept every Night with his Sister, between three and four Years old, who had less than 40 Pustules ; and daily handled, played with, and drank after Miss HOPKINS between five and six, who might have full 500, for about three or four Weeks, during which they all kept together in a large Nursery. That Diversity of Habits for this Disease, which sometimes occurs in the nearest Relations, is very remarkable in these Instances ; where the eldest Child had not a single Pock, nor scarcely any thing like variolous Sickening : the second, for her Age and Size, and for Inoculation, had a great Number tho' distinct, with considerable Inflammation and Soreness : and the youngest had a most benign disease in every Respect, hardly ever lying down in the Day-time, nor ever complaining. The eldest had just Sickness enough to manifest the Admission of the external Principle into the Blood, which afforded no Aliment, no assimilable Matter for it, but from which, nevertheless, Nature found it necessary to be expelled. I informed their Parents and Friends before Inoculation, that Miss HOPKINS would have the most, and her Brother very few ; but I had no *Criterion*, no Rule for discovering that he would not have one. They were all inoculated with the same Matter (exclusive of the second applied to the young Gentleman) taken from a Subject I had inoculated ;

and were prepared very nearly alike, with a proper Regard to their different Ages, &c. Mr. HOPKINS himself is considerably pitted with the natural Disease, which he had severely in his Youth. Mrs. HOPKINS, who was inoculated after Marriage, had a considerable, tho' distinct, Eruption, and a Speck on one of her Eyes; which, however, has long since recovered all its natural Force and Lustre; nor is there scarcely a discernable Trace of the Small Pocks in her Countenance.

Now some Persons missing by Inoculation may be considered as exempted by the previous Disease, which two of the twenty-nine mentioned by Dr. JURIN are expressly said to be, having been inoculated, as such, for Experiment. It appeared afterwards that one of Dr. NETTLETON's two had had the Disease. BOYLSTON says it was affirmed of three out of his six, that they were remembered to have it very young; and a fourth recollected that, when she was very young, the Doctor and Nurse disputed whether she had the Small Pocks or not, having but three Pustules, only one of which pitted. The Gentleman in *Carolina*, who was twice inoculated without Effect, was really suspected by his Friends in *England* to have had it very gently in his Infancy in *Yorkshire*; he has been twice since over in *England*, never avoiding, and never having taken the Small Pocks. The four Negroes were all born in *Africa*, and might not improbably have had it mildly in their Infancy. As they are liable

ble to a great Variety of cuticular Diseases, a slight Pit or two was the less credited for a Mark of the Distemper. Dr. JURIN observed, that Inoculation missed oftner of its Effects on the more advanced than on young Children, it being more likely the former have already had it than the last. And we may add, that the Parents of adult Subjects, who might have seen them in a mild Small Pocks, or have over-looked the most gentle Degree of it, which has certainly happened, are generally dead when their advanced Posterity are inoculated ; whence any Information or Hint concerning a former Disease is often totally obstructed.

Others may have remained uninfected from a natural and total Absence of this specific *Pabulum* or Quality in their Habit.* And undoubtedly each

* This turns on the much debated Question, Whether any Persons are naturally privileged from the Small Pocks ? on which a Majority incline to think, that all Persons arriving to a certain, tho' indefinite, Number of Years, take it, if often in the Way of it. There is no Doubt however, but several have attained to, and several have died at, an advanced Age in and about *London*, without taking it. I have seen some of them. In my former little *Essay on Inoculation*, I hazarded a Supposition, without any Authority, that two Persons out of every Hundred might be thus naturally exempted. I find however, that REIDLIN, who contends for this Exemption, thinks two out of each hundred rather too large a Calculation — *Sur cent personnes à peine deux evitent cette maladie*. Were we to be determined on this Point, by the 45 who remained uninfected out of the 1179 inoculated, (see P. 128) it would be nearly 4 in each 100 : but if we add to these Inoculated 900 more in *South Carolina*, A. D. 1738 ; and add 5 out of them who did not take Infection, to the former 45, it will reduce the Proportion of Bodies naturally exempted (supposing not one of the 50 ever to have had any Degree of the natural Disease) to a small Fraction above $\frac{1}{2}$ in each Hundred.

each Constitution is exempted from some particular Diseases, and more exposed to others. In some an Exemption may be only temporary, and depend on any present or previous relaxing and evacuating Disease, as chronical Intermittents, Hæmorrhages, Diarrhæas, or an accidental overmoist and leucophlegmatic *Crafsis*; whence the Powder, as we may metaphorically term the Fuel here, being damped, the variolous Spark is for that Season extinguished. Others may have but a very small Proportion of the Fuel, and so very free a Surface, that upon the most favourable Mode of Contagion, a copious *Diaphoresis* may expell, through the exhaling Vessels, the *Effluvia* which were admitted by the inhaling ones, or by an Incision: for supposing them to encounter nothing assimilable in the Blood, * they must nevertheless be expelled, as heterogeneous to it. And this, with very great Probability, was Miss BRUCE's Case, where the *Crassamentum* was scarcely affected enough to furnish one visible Efflorescence, and the variolous Cause was emitted with the transudatory Lymph.

We may justly conclude however from certain Experience, that wherever Inoculation missed, from whatever Cause, the Operation was introductive of no other ill Consequence: though with Regard to their future Exemption, it must depend on the particular Cause of their late one. Thus if that were owing either to a natural and total Absence of the variolous *Pabulum*, or to a
very

* See Miss Baker's Case P. 144, and Master Hopkin's P. 154, 155.

very gentle Degree of the genuine Small Pocks insensibly past through before, there can be little Doubt of their perpetual Indemnity. But where the Operation has been ineffectual, from the late dormant and unsusceptible State of the Fuel, whenever those Causes depressing or damping it are removed, the Subjects are doubtless liable to the Disease. We are to suppose though in such Cases, that a Dose of active variolous Matter has been applied and received. And if the Incision has inflamed, though but moderately; if there has been a Fever; and a small Number of Pus-tules, which suppurate and observe the *Stadia* of the gentlest Disease, appear, I shall not doubt myself of the Patients future Security. It has been certainly known that one only has risen, and the Patient, residing for Years afterwards in the Scene of Infection, has not been visited with it.

The accurate Dr. JURIN considers 5 out of 474, as having had an imperfect Small Pocks. This gives us an Idea of some Eruption, which did not exactly fill, mature, or observe the usual Stages of the regular Disease. BOYLSTON does not set down one Patient of near 300 under this Predicament; but his inferior Accuracy and greater Temerity on this Subject are very obvious. It were to be wished we had been informed of any remarkable Sequel to this imperfect Small Pocks; though if they had taken the Disease afterwards, it is probable we must have heard it, from one Party at least.



SECTION VI.

Whether there be a material Difference in the variolous Matter, taken from different Degrees of the Disease? Between that taken from the natural, and from the artificial? And whether either be communicative of any other Distemper or Ailment?

THESE Doubts and Objections, but more particularly the last, having contracted the early Progress of Inoculation among us; notwithstanding their Operation at present is much abated: yet in order to restrain it always within its justest Bounds, and to avail our Neighbours (who may hereafter admit Inoculation, and have these same Objections to it repeated) of our Experience concerning them, we shall attempt to discuss them distinctly in this Section.

It appears the *Grecian* Operatrix was very careful in her Choice of the Ferment, as *PYLARINI* terms it, extracting the Matter from the ripe and kindly Pustules of a young Child, otherwise of a sound Constitution. He says, she re-
jected

jected the *Pus* from the Inoculated as ineffectual. TIMONI also says, they pitch upon some young, sound and healthy Subject, seized with the natural Small Pocks, and of the distinct Kind, to take the Matter from. He adds, it was taken the 12th or 13th Day from Seizure, and Experience shews it may be properly taken as soon as the Matter is well concocted, smooth and equal; and that it will be effectual as long as it can be fairly extracted from the Pustules, which, in some Instances it may be a Week, and in others I have seen it a full Fortnight, after the first evident Suppuration. Some Gentlemen who imagine the variolous Matter may impart a gentler, tho' effectual Disease, by its being kept, from an Exhalation of its most subtil and volatile Parts, will doubtless prefer its being taken from some of the Pustules that are likely to dry last, which are generally on the Extremities, and opened or penetrated with the least Inconvenience to the Infected; being replenished too from the later and more dilute Runnings of the variolous Distillation, as we have ventured to term the Eruption and filling of the Pustules. And besides what has been formerly * hinted on such a Circumstance, it is evident in Fact, that the peculiar Virulence of some Poisons may essentially consist in their most volatile Parts; from the violent Effects of certain chemical Fumes, which leave the remaining Mass safe and medicinal. I have been certainly informed, that a Relation of my own dropped

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* See P. 74.

down instantly dead, on pouring out a large Quantity of some distilled Spirits from one Vessel into others. And that the Vehicles of some Poisons may become less noxious and acrid, from an Exhalation of their most volatile Particles is evident, from the Juice of the *Cassada* Root, which containing certain Death on its first Expression, becomes innocent and insipid in a very few Days; the dry Root, after Expression, making a wholesome, and not unpalatable, Bread. Be these Facts however more or less applicable to the different Situation and Age of the variolous Pustules, Reason and Experience concur to make us prefer a bright well concocted Matter, which will not be too mature, as long as it is imputrid and efficacious.

On the other Hand Mr. (now Dr.) FREWIN in *Suffex*, who was pretty active and enterprizing in this Practice, tells us, he took and applied some of the Liquid in the Eruptions, while yet in its limpid State; and could perceive no other Difference, than its being somewhat slower in its Operation. This Gentleman has not informed us, whether the same Curiosity prompted him to take this unripe Liquid from the first Eruptions that afforded it, which would probably be those of the Face and Neck, and which we must have disapproved for Reasons just given. Besides which, I should have doubted, before his Experiment, of the Efficacy of the unripe Lymph of the later and lower Eruptions; which are not likely to be so fully impregnated with the infecting Particles,

as the enlarged and concocted Pustules, and seem to have some Analogy with Grain, in its immature State. Possibly too the Smoothness of the ripe Matter, which partly consists of the late red Globules, may render it more equally miscible with the Blood of the Person to be infected, than the lymphatic Part would be : And notwithstanding this may be only Supposition ; yet as the ripe yellow Matter has been found so very generally effectual and safe, we can discern no Reason for trying the more thin and ferous Vehicle ; except where the former is not to be procured, which sometimes happens, as the Pustules in some Cases and Habits will wither and scab without a good Suppuration

PYLARINI, like a Physician, at once inferred the Efficacy of the *Pus* from Inoculation, which the *Greeks* rejected. It was natural enough for him to suppose, in the Infancy of this Practice, that it would be milder than the natural, as being the Produce of a milder Disease : but this he modestly submitted to further Experience, which, I imagine, will rather induce us to conclude, that what he was for attributing to the Matter from the Inoculated, depended much more on its Application by Incision. We have at present not the least Doubt of the Efficacy of the Matter from Inoculation. Mr. RANBY's Papers inform me he has found it effectual in the 5th Remove from the natural *Pus*, which I have also experienced myself ; and a Gentleman abroad assured me it had the same Energy in the 7th or 8th Succession,

cession, which we may securely extend to the eight hundredth.

It seemed uncertain as yet whether the purulent Discharge from the Incisions was variolous. Dr. NETTLETON informed Dr. JURIN in 1723, that the Matter infused into a Lad unaffected by it was chiefly taken from the Incision, the Pustules being withered and almost gone; whence he inferred the Matter from the Incisions would not infect. FREWIN, who published in 1749, says, that, for want of Matter from the Pustules, he often applied the purulent Discharge by the Incisions in the Height of the Disease, which has succeeded well: but that trying the same 10 or 12 Days after the Turn of the Pock, it failed. It would have been material if he had distinguished here, whether or no there was any Pustule within the Lips, or close on the Verge, of the Orifice, which sometimes happens. As many of the Inoculated have very few Pustules, and they are sometimes disposed to scab and wither away with very little Suppuration, it might be of Service to discover that the Matter from the Incisions would infect: but it would be certainly satisfactory to find it would, where there was no Eruption from Inoculation, as its Variolosity would greatly warrant the future Security of the Person it was taken from. That it is variolous is since evinced. Mr. WALL, Surgeon of the inoculating Hospital, assured me, he infected a Child of seven Years old, with a considerable Eruption of the distinct Small Pocks, from the suppurated Incisions of a Lady

Lady of Condition, who had not a single Pustule, tho' a Head-ach and slight Fever at the usual Time of sickening.*

But as the Friends of Inoculation vaunted, in the earliest Contests about it, that they could select a benign Matter from a mild Disease and a sound Constitution, for the Infusion of the Small Pocks, which were not always the Circumstances of natural Infection: while its Opponents declaimed on the great Danger of inoculating, with the Small Pocks, any hereditary or contracted Diseases of the Person it was taken from; the Certainty, or, if that should be unattainable, the Probability or Improbability of the Assertions on each Side deserves our Consideration.

My having a large Family obnoxious to this Infection in 1738 rendered me more than ordinarily attentive to every Mode and Circumstance of it. Wherefore, after that a mature Consideration of the Disease, of the written Facts and Arguments for and against Inoculation, and a considerable Measure of ocular Evidence on this Occasion, had irresistably determined me to prefer the Operation, I could not but approve the Conduct of the first Operators, in selecting, with all due Caution, the best conditioned Matter from the most benign Disease, and healthiest Subjects to inoculate from; as well as the Expediency of taking it at an Age, when such Subjects could not be supposed to have contracted any Disorder from their own Irregularity. I considered, and
still

* See P. 142.

still consider it, in the important Function of infusing a Disease, as the Duty of the Infuser, to avail his Patient of every possibly availing Circumstance; that, in Case of a Miscarriage, which repeated Experience has manifested the Contingency of, he may have nothing, but the Want of a supernatural Penetration, to reproach himself with. And this I hope is, I am very certain ought to be, the general Conduct of as many, of every medical Arrangement and Denomination, as are engaged in giving the Disease. But the present Question is, Whether this be essentially important and necessary in itself, or only very preferable, from great Prudence and abundant Caution. When I had repeatedly seen the Matter taken from one Patient under a very small Eruption, on its Application to half a Dozen, produce a different Quantity of Eruption, sometimes very different, in each; and the *Pus* from another under a considerably more copious, tho' distinct, Eruption, convey no more, and sometimes less, than the former; and generally found the Height or Remissness of the Symptoms to correspond with the visible Quantity of Pustules, it was impossible to avoid inferring, that such Variations resulted from the different Constitutions of the Inoculated. Hence, in the little Essay published about fourteen Years past, I ventured to assert, that tho' something might *perhaps* depend on the Quality of the infused Matter, (whence every Operator must endeavour to procure the most unexceptionable) there was *certainly*

tainly much more in the Disposition of the Body into which, and the Season of the Year when, it was infused. In the former Part of my Opinion I have had the Pleasure to be since confirmed by the Suffrage of Dr. MEAD, to whom I presented that Essay, and who thinks (a) the Condition of the receiving Body a more important Circumstance than that of the imparting one. But besides this most rational Inference, there are not a few Facts that directly confirm it. The first Inoculator I ever knew, a Person of great Veracity, assured me privately, he had inoculated with *Pus* from a Patient loaded with a natural Confluence, of which he afterwards died; and that those inoculated with it did entirely well, without any very severe or unusual Symptoms. The adventurous Dr. FREWIN says, he has known 21 Persons inoculated the same Day, from a confluent Pock, which finally killed the Patient; yet all those, he affirms, had it in as favourable a Way as could be wished. He adds, he has inoculated many more with Matter of the malignant kind, without the least ill Consequence. Now, tho' I am not without some Acknowledgement for such an Illumination on this curious Topic, as I do not chuse to question the Author's Veracity; yet I must confess the Idea of it gives me a Horror, which is not very philosophical perhaps; but is such, as would prevent me from
troubling

(a) Praeterea plus mea opinione refert, in quale corpus infundatur, quam de quali eximatur pestilentiae virus.

troubling him to select Pock for a Friend or a Patient of mine. I should have wanted an eighth Convict for the Experiment. The sole Use I would make of these Instances is this ; that supposing, only for Argument's sake, such a confluent and malignant Small Pocks to reign so generally, that no better Matter could be procured, I should prefer inoculating even from them to their natural Infection. I must suppose however, that it is not taken from a Disease attended with a Gangrene, which we have cautioned the Subjects of the Small Pocks to avoid the* Stench of. But in other Respects enough has been instanced and implied, to make the Friends of Inoculation admit, that the Opportunity of selecting Matter, from a particular Sort or Degree of the Disease, is far from being its most material Advantage. And this Conclusion will be strengthened not a little, by our observing, that Dr. HAEN the most flaming Opposer of Inoculation, has not in his last vehement Work against it, formed one of his Objections to it, on any supposed Difference in the Matter, that imparts the Disease.

We proceed to consider, whether the infectious Matter is communicative of any other Disease, or morbid Disposition, the Person it was extracted from might have, or be liable to ; which was strongly affirmed and industriously propagated, by the natural Fears of some, and the Perversity of others. For my own Part I can with great Truth aver, that an Experience of more than 20
Years

* See P. II, 12.

Years on this Subject, and the utmost Reflection in my Power, have convinced me, that it never did, nor can impart any Disease, but the specific one that produced it; and this, among other Reasons, for the subsequent ones, which I have partly transcribed from my former Essay on this Method.

The Seeds or Principles of contagious Diseases I conceive, however impalpable, to be as distinct as the Seeds of Plants, which may be lodged in such different Soils and Climates, as will either dispose them to Luxuriance, or prevent their very Germination; tho' we cannot, by any Art or Compost, make a Pippin produce a Cabbage. The Matter of the Pock, however produced, we find sufficient, in the smallest Quantity, to convey the same Disease that effected it: and if it were to convey any other, that other ought, at the very Time, to have been united with what it does convey: for to be transfused it must exist, which the transfused Disease does. But I may be answered, that it is not supposed the Pock shall, with itself, convey the Plague, Measles, or any such acute contagious Disease, which has a distinct external Cause; but some hereditary or contracted Disorder of the Person it was taken from: which would imply, in short, that we must transfuse his *Stamina*, his Constitution, in a minute Part of a Grain of his variolated and suppurated Blood; which is not only strongly improbable to a Person of the least medical Reflection, but would prove much more than the Ob-

jectors could intend ; since such a Commutation might sometimes prove for the better.

Hereditary Diseases I apprehend, do not only imply that they may be imparted, but the Expression ascertains the sole Manner in which they are, by Consanguinity or Propagation, strictly : since the same Cause, which often effects such striking Resemblances in the Features, Make, Complexion, Appetite, and the very Temper, may produce a similar Conformation of the vital elaborating Organs, (which must produce a similar *Crafsis* or Consistence of the Blood) and in the vascular and nervous System too ; the natural Consequence of which will prove a Propensity to the Diseases of the Parent. If they have been the unwelcome Legacy of the Father, we may consider them as the Consequences of an extraordinary Infusion indeed, but of a particular Fluid secreted from the vital Mass, and probably affected with its particular Qualities, but visibly homogeneous as such, nor so sensibly perverted in its Texture and Substance, as Blood variolated into *Pus* ; in which Case it could scarcely fulfill the Purposes of Fecundity or Vivification. And if we suppose the Disease, which is to be co-infused with the Pock, to descend from the Mother, we are to consider the Person hereditarily affected, as one partly generated from her Substance, and solely nourished by her Humours for many Months ; a Situation, which may well be inferred to impress such a Disposition to the Disorders her Humours are propense to, as can scarcely be
received

received afterwards from another Person. And supposing this co-infusible Disease contracted by the Person to be infused from, the Argument is similarly applicable. For the *Pus* can no longer be considered here as meer Blood, in which a Disposition to other Distempers might possibly reside ; but as a peculiar Corruption of it by the variolous Cause, in the Process of the Disease ; which, if it assimilates such disposing Particles, must subdue them to its own Nature, as it incontestibly does, and in some Proportion to the evident Alteration of their Vehicle : from which Change of Consistence, Figure and Texture, their former Effect must cease ; if it be as true as probable, that Bodies operate mechanically, and in Consequence of them. I judge it unnecessary to say any thing of such Diseases as are justly termed *Errores loci*, or the Effects of a bad Formation of any Part ; since it may be as reasonable to suppose the Infusion of a Hump-back or Dislocation, as of them. And yet such is the Rage or Whim of Opposition, that after the fantastical Objections Civility has sometimes obliged me to listen to, I should not have been extremely astonished, if some had been delicate enough to dread being inoculated from a different Sex, from apprehending a Commutation of their own, or the compounding an Hermaphrodite. Such a Reflection may be judged full ludicrous here, but it is difficult to argue with a continual Gravity against some *Chimeras*.

But whatever Validity or Weakness there may be in these Reasons for our negative Solution of this Query, there are very numerous Facts to prove, that no other Indisposition is ingrafted with the Small Pocks, from the transmitting Body: tho' in Justice the Asserters should establish their Affirmative on Facts (which they may safely be challenged to do) rather than leave their Antagonists to prove the Negative. This happens nevertheless to be no Difficulty; and if the confluent and malignant Small Pocks have been proved, in many Instances, incapable of generating their own Degree and Mode of this Disease, it is scarcely conceivable they should transmit another essentially different. Let the following Fact suffice here, instead of some thousands which might truly be produced.

The venereal Disease, known to be as communicable as any, has been particularly dreaded in this Respect: since doubtless its deeper Taints are eradicable in some Constitutions, but with great Difficulty; and in a few perhaps never entirely. Now a worthy Surgeon of my Acquaintance, of great Truth and Morality, assures me, of his own Knowledge, that a young Lady of a creditable Family was inoculated by an Apothecary, from a Gentleman's Servant in a kindly Small Pocks, who had, at the same Time, a venereal *Bubo* and other Symptoms, of which the Apothecary was wholly unconscious. The inoculated Lady notwithstanding did mighty well, and to the End of many Years, which
have

have since intervened, had not the lightest Symptom of venereal Contagion. Yet perhaps from the subsequent Scabs, Baldness and cuticular Effects of both Diseases, which will admit of a moderate medical Parody, it is an obvious Conclusion, that no other would be more likely to be infused with the variolous Matter. Finally, the acute Dr. HAEN never supposes the Communication of any other Disease but the Small Pocks by Inoculation ; tho' he judges, and not improbably, that the Inoculated may be affected by any febrile epidemic Constitution of the Air, in the same Manner with those naturally infected at the same Time and Place.

In the Heat of these medical Disputes, the ill Effects, which put an End to the Transfusion of the Blood, were also prest into the Service against Inoculation ; but surely without sufficient Reason or Candour : Since in the former a large Quantity of Blood is suddenly admitted to replace as much of the Patient's own ; the former of which, however seemingly better qualified in itself ; yet, *quoad hunc*, with Respect to the Receiver, not having been factured and elaborated by his individual Organs, may have a *Crasis* not properly counteractive to the Tone of his Solids ; unfit to correspond with the Orifices of his Strainers : and, as the Blood was sometimes received from young eatable Animals, it might not afford the precise Quantity or Quality of the nervous Secretion, necessary to the regular Information and Oeconomy of the human Machine, whence

whence very surprizing Consequences might arise. But here the great Disproportion and Diversity of the Fluid transfused, and that infused, are too manifest to make us expect any coincident Consequence. Inoculation had also been represented by some as analogous to admitting the *Saliva*, or Slaver, of a mad Dog into the Habit; as if the Resemblance of a Bite injected, and an Incision infused, with a very different Liquid, were to obliterate the monstrous Disparity of their general Operation and final Event: when, if it had been rightly considered, that the morbid canine *Saliva* ever produces one and the same specific and surprizingly resembling Disease, even in the human Constitution, which is not its original Subject, it must rather have precluded all Supposition, that the Insertion of the Small Pocks ever communicated any Disease essentially distinct from itself.

On the other Hand Abscesses in the *Axilla*, or Armpit, tho' infrequent, happen oftner to the Inoculated, than after the natural Disease; and are probably owing to the Tendency of Humours to the Ulcers; which Ulcers have continued to discharge sometimes for several Weeks, and proved ill conditioned and troublesome, in a few Instances. Neither are we without some rare Examples, where the Sight and Beauty of an Eye has suffered from the artificial Disease. I knew two Ladies abroad, thus affected, where the youngest greatly outgrew the Weakness and Blemish. The like occurred here above six Years since, which is now entirely vanished. A
white

white Speck remained over the *Iris* of a Youth of 11 Years old, whom I inoculated, for some Months after the Disease, which was very moderate in every other Respect: but it is now entirely wasted, and has neither lessened his Sight, nor weakened the Organ. But such incontestibly happen much seldomer to the Inoculated than to others: and if we admit that the *Ratio* of such an affecting Disorder in both Ways may correspond to that of their different Mortality, we certainly admit the utmost that can be true against Inoculation on * this Head. I inoculated a young Lady of a fine Complexion for this Disease, who being tired of a little Confinement under a very light Infection, after looking out of an airy

* That I have not exceeded in this Computation is more than probable; since Dr. ARCHER Physician of the Inoculation Hospital, after a very happy Experience of twelve Years, assures me, that of 2499 Patients inoculated there, to the 24th of March, 1761 (of whom only eight died) not one lost the Sight of an Eye; and there were but a few who had any Weakness of Sight, and that of no Continuance. He acknowledges at the same Time, that of the first 1500 Patients received there in the natural Way (of which many must have died) none [surviving] suffered in their Sight: but then he adds, that last Year in the natural Way he found bad Eyes considerably more frequent than usual — Here, by the Way, for the Information of such as have not had the Pleasure of perusing Dr. SQUIRE's (now BISHOP of St. David's) excellent Sermon, in Regard to Inoculation in 1760, nor the State of the Hospital to March 24, 1761, we shall observe, that out of the Number of 5050 in the natural Disease, admitted from September 26, 1746, to March 24, 1761, there have been cured 3776; from whence it will appear, that the Number of the deceased is 1274, which is one full fourth, and 12 over, of those naturally infected: while the Loss by Inoculation was, at the nearest, without a Fraction, one in 312 of the Inoculated, a most saving Loss indisputably! which indeed would have been more properly remarked in the preceding Section.

airy Window, complained suddenly of a Pain in the *Axilla* of the inoculated side, which inflamed, and, forming a large Abscess, proved of a strumous Disposition; tho', on a Change of Air, and more compleat Puberty, she grew entirely well. She was often subject before to little Eruptions about the parotid Glands, and the Person the Pock was taken from of a remarkably pure Surface: whence it should seem here, as if either the Disease, or the sudden Check of Perspiration after it, excited the inherent strumous Disposition, which indeed was but moderate, as She continues entirely healthy since. And here I presume on the Readers Indulgence, for presenting him a singular Consequence occurring to a Patient I inoculated in 1759.

A very young Lady between six and seven Years of Age, being inoculated with her two Brothers and two Sisters, had a considerable Crop of the distinct Small Pocks, with such a Tumour of the Face and Eyelids, that She continued blind about four Days. The Distemper, nevertheless, was very benign and regular, with a perfect and plentiful Suppuration; and was attended with very little, if any, secondary Fever. But on her getting up and taking Physic, while the Pocks were scaling from her Face, a little *Phlegmon*, or large Styne, arose on the left Eyelid, and was accompanied with a *Strabismus*, or Squinting, the Pupil being directed to the inner *Canthus*, or great Angle of the Nose. As the Styne was pretty hard, and settled on that Part of the Lid near
the

the outward *Canthus*, I imagined at first its Pressure on the Ball of the Eye gave it that oblique Direction, and hoped, when that little Tumour was dispersed, the Eye would recover its natural one. But after it wasted by Degrees, the Squinting still continued. I recommended then the Advice given by St. Ives, *viz.* — That the young Lady should place herself before a Looking Glass every Morning, and look at the Reflections of her Eyes in the Glass, 'till she found the Pupils there direct and strait, and to practice this at least a Quarter of an Hour at a Time. This she did, and within a few Days the Squinting entirely disappeared, which greatly satisfied her Parents, and made me greatly pleased with St. Ives. She was advised also not to read, nor sew, and to face whatever Window she was near, rather than to have it on either Side of her. She had not all this Time the least nervous, nor indeed any, Complaint. Nevertheless, within a very few Days the Obliquity returned; and from that Return to the Time She left *England* about *August*, 1760, being above a Year after her Inoculation, the Squinting became periodical, her Eyes looking perfectly direct with their natural Motion, and no other, one Day, and the next with this strong Obliquity. The Apothecary who sent in the Medicines I had directed before, and during the Disease, with the usual Purgatives after, gave her, on his own Judgment, Bark, and Valerian, and perhaps other nervous Medicines, for a considerable Time on

this Account, without any Alteration for the better or worse. A little before her Departure, I advised the affected Eye to be defended strictly from all Light for a full Week, and then taking off the Cloths, she looked quite strait and right, though it was in Course to have been her bad Day. Yet either the next Day, or the Day but one after, the *Strabismus* returned every other Day, but had now exactly shifted its Intermissions, in which State she left *England*. I gave her Father, a very sensible worthy Gentleman appointed to a Government abroad, some Directions, and ordered a few Medicines with her, but have not as yet heard whether they have been attended with any Benefit, or with any further Change of her Paroxysms. But as She is very young and healthy, tho' of a slender Make, perhaps her accruing Strength, and increasing Attention to the great Article of Beauty, may concur to rectify this strangely intermitting Appearance; which I have not found paralleled in *Zacutus* his *Praxis admirabilis*, nor in any medical or philosophical *Ephemerides*. She had a Fit on the 9th from Inoculation, previous to Eruption, being the only one of eight Brothers and Sisters inoculated, who had one. But the Look of her Eyes was not at all distorted by this, which was very evident, her Blindness not approaching for several Days after. She had not after this Fit, the least Head-ach, *Delirium* or nervous Complaint, throughout, nor subsequent to, the Disease. I should not omit, that the only Window

in

in the Chamber where she lay was situated on her right Side, in a Corner below the Foot of the Bed, and at some Distance from it ; so that, upon opening her Eyes, after her Blindness, she could not look directly at it ; and as her Eyes may then be supposed a little weak, possibly this oblique Situation of the only Window might have a Tendency to produce this odd Disorder. I mention this Circumstance as a Caution to others, in a like Situation, having related the Case without the least Disguise or Suppression. One of her Brothers, inoculated at the same Time, had about an equal Quantity of Pustules, either of them having had abundantly more than the other six altogether. These two were inoculated from the same Matter with, and had by no Means a larger Dose than, the rest. He was blind about the same Time with her, but never squinted. He could not see any Window, and the Light that came from his Sister's Chamber, when her Door and Window-shutter were opened, came pretty directly to him. The Eye first affected was the farthest from the Window, and of the same Side with the inoculated Arm.

I shall conclude this Section with declaring, that although I have tantamount to a Conviction myself, that the variolous Matter will convey no Disease but the Small Pocks ; and that a well concocted *Pus* from any Mode of it, not accompanied with a Mortification of the Fluids or Solids, will operate but in Proportion to the Quantity and Quality of its Fuel in the Person receiving it ;

yet I am entirely of Opinion, that the most laudable kind of Pock, and the most unexceptionable Habit of Body, should be always carefully selected to transmit the Disease ; as well from Motives of Prudence, as from a Reflection on the Shallowness of all human Science, and the Possibility of such Consequences as have not hitherto supervened. We must be very certain, the best Disease from the best Habit will not be most likely to convey the worst ; and there may be an ill-judged, perhaps an ill-natured, Temerity in our extreme Opposition to such of these popular Prejudices or Mistakes, as are founded in natural Love for ourselves, or on a relative, or social Affection, for others.





SECTION VII.

Of the various Methods of artificial Infection.

THE great comparative Security and many Advantages of Inoculation being, to our Apprehension, indisputably established from the preceding impartial Detail of its Consequences, we proceed to a Description of the different Methods of this simple and easy Operation.

PYLARINI informs us, the *Greek* Inoculatrix made an oblique Puncture with a Needle on the Middle and Top of the Forehead, on each Cheek, and the Chin; on each *Metacarpus* and *Metatarsus*, and dropt into each a little of the *Pus*, which she had just brought warm in her Servant's Bosom, from a young variolous Patient, sick in the natural Way, and of a good Sort. TIMONI says, the Operator is to make several little Wounds with a Needle, in one, two, or more Places of the Skin, 'till some Drops of Blood ensue, when he is to pour a Drop of *Pus*, qualified as above, into each, and mix it well with the Blood, as it issues out. Both these Physicians are here relating the *Greek* Method, the latter recommending, from himself, the Muscles of the *Radius* or Arm; and the former judging it

it eligible to make the Punctures in the more fleshy Parts of the Body, as being less liable to Pain and Inflammation, and not interwoven with Tendons. The Wounds were covered with Bandages gently applied, and sometimes half a Walnut Shell was placed concavely over each Orifice; and it was recommended to the Patient to forbear scratching or exposing them to the Wet.

I have read some Author who says, the Wounds in the Face, Chin and Cheeks, were made in Resemblance of the Cross; and that their Number of five referred to the five Wounds of CHRIST. Now, tho' undoubtedly many of these are superfluous, and all very injudiciously placed, it demonstrates these innocent well meaning Creatures never deemed the Practice an Invasion of the divine Prerogative, but very naturally ascribed the good Effects of it to the Father of Mercies; when they enterprized it, as I may say, under the Auspices of those religious Symbols; and, seeing none but a happy Issue attend it, never supposed the least physical Reason for the Method: as PYLARINI assures us, the Woman, who gave him a full and plain Account of the whole Process, was entirely ignorant of the true Cause of the Propagation of the Small Pocks by Incision. It required an Imagination of more Flame, joined to an odd Perversity of Erudition, to discover, as the Rev. Mr. MASSEY did, that the Devil invented Inoculation, and poor *Job* was his first Patient: tho' perhaps our Phrase of the
Devil's

Devil's being in the Doctor was previous to this amazing Discovery.

Mr. MAITLAND generally made an Incision in each Arm, but inoculated the six Malefactors in *Newgate* in both Arms and one Leg. It was usual with some for a considerable Time, to inoculate one Arm and the Leg on the opposite Side. It is said the Ambassador from *Tripoli* here affirmed, that in *Africa* the Disease was imparted by passing a Needle and Thread, that had been conducted thro' a well matured Pustule, through the Teguments between the Thumb and Forefinger, where they may be pierced without wounding the subjacent Muscle. We are to suppose part of the infected String was secured for some Time in the Puncture.

The *Chinese* are said to have had their peculiar Method of conveying the Small Pocks for a long Time past, which cannot properly be named after that Operation in Gardening, ours so greatly resembles. They convey a Pellet of variolated Cotton, with the Addition of a little Musk, into the Nostrils of the Person to be infected, and find it effectual to give the Disease. We have observed, that the Missionaries sufficiently extol the Abilities of their Physicians: but certainly no very sagacious one could devise or encourage this Practice; which seems to have no sort of Advantage of the common Infection it so greatly resembles, except that of its admitting them to premise a proper *Regimen* and Preparation, and to select a proper Time of Life, and Season of the Year,

Year, for the Disease. We shall not stop here to theorize on the manifest Disadvantages of variolous Inodoration, as this Method may be termed, in Respect of Incision (since it is not clear that a variolated Pill might not be swallowed as eligibly) but exemplify the Effect of it from an Experiment, which Dr. MEAD was allowed to make on one of the seven Malefactors who were to be infected by Art. This female Criminal, the youngest of them all, was about eighteen Years old; she sickened and recovered as the others did: but he informs us, the Symptoms were much severer; that immediately from the Introduction of the Matter she was afflicted with a most excruciating Head-ach, and with a Fever that never intermitted 'till Eruption came on.

Dr. WILLIAMS informs us of another Method of Infection, practised among the common People in *Pembrokeshire, South Wales*, as he says, for Time immemorial, which may be called the
* Infriktion of the Small Pocks. Some of the
dry

* Mr. Wright of *Haverfordwest* observes, in his Letter of February 15, 1722, on this curious Subject, to Mr. Bevan, of London, that there are two large Villages near *Milford Harbour*, St. *Ishmael's* and *Marloes*, the old Inhabitants of which say, it has been a Practice with them Time out of Mind; and that particularly one *William Allen* of the former, then 90 Years old, declared to very creditable Persons, that this Practice was used all his Time; and that he well remembered his Mother's telling him it was so in hers, and that she procured the Small Pocks that way herself.— This may be reasonably presumed to make that Practice of 158 Years standing there, reckoning from this Year 1761 backwards; but how much older it may have been there; or whether the *Circassians* had their Method earlier, is impossible, perhaps, to determine.

dry Pustules are to be procured (by Purchase it seems) and rubbed hard upon the naked Arm or Leg, the Event of which is said to be as effectual, and successful, as that of Inoculation. Now supposing no variolous Steam or Odour to enter by the Mouth or Nostrils during Infriktion, this Sort of Infection will be very similar to that, which is accidentally imbibed by the superficial inhaling and inforbing Vessels; and which probably does not occur as often as that by the Breath or Smell. This Device however, some medical Gentlemen, who imagine the Surgeons, perhaps, sufficiently attentive to, and successful in, a Monopoly of Inoculation, have mentioned as worthy of reviving; notwithstanding this still leaves it a Work of the Hand, but such indeed as any Hand may perform. Were we to admit here (which seems barely possible, and is yet the utmost that can be contended for) that the Infriktion of this Poison, through the Surface of any Limb, may dispose to a greater Derivation of its Consequences there; yet as there is no palpable Ulcer or Outlet, which seems a most material Circumstance; and as our Purpose is to regard the Health and Interest of the whole Community, or rather of the whole Species, without Respect to, or Resentment of, the distinct Emolument of any particular Society, we cannot consistently consider this Infriktion as equally salutary with Inoculation. Neither is it as effectual; for since the first Impression of this Book the late Dr. CONYERS, Physician of the Foundling Hospital, gene-

roussly acknowleged, that he rubbed the variolous Matter into four Children there, without infecting one of them. This has been printed in the philosophical Transactions. DIEMERBROECK (1) and (2) HODGES, who bravely devoted themselves to all the repeated Hazards of the Plague for the Service of their different Countries, agree, that Issues were found the most effectual Preservatives from that Contagion; and add, that after manifest Symptoms of its Reception, they often discharged a thin, bloody, or even blackish Matter, to the Security of the Patient. It is surely then no unjust Inference to suppose, that Incisions, rendered ulcerous by the variolous Infection, may prove full as attractive of the similar Principle, which has been transmitted thro' them to the Blood. We shall conclude this Clause of variolous Infriktion by observing, that Mr. Owen's was something more, as he rubbed the Back of his Hand with the Back of a Penknife, 'till some little Excoriation or Soreness ensued, before he applied the Scab. This was certainly inoculating the Disease, tho' coarsely, as well as their pricking the Skin with Pins dipped in the Matter; which others of them did.

Having just mentioned the prophylactic Use of Issues, even in the Plague, may we not seasonably suggest the possible Benefit of them to such Adults as dread the Small Pocks in every Shape, and yet are obliged to reside, or to come, within the Sphere of its Infection? And should they

(1) *De Peste*. P. 150, 151, 357.

(2) *Loimolog*. P. 240, 241.

they finally resolve on Inoculation, may not the Infection of such an Outlet, as the Humours had been for some Time accustomed to, promise well for a more copious Discharge than a recent Incision? That the Lymph may be infected here rather before the red Globules, does not seem to be any exasperating Circumstance: and that old Issues will effectually transmit the Contagion to the Blood I have repeatedly, and never unhappily, * experienced. But with Regard to former Issues, applied for other Purposes, we are to consider well, whether the Disorder they were applied for is removed; and how far it may be revived by this Disease, or its Cause be likely to co-operate with the Infection. But to return to the Operation.

As it was experienced that the crural Incisions, especially in gross Habits, were more difficult to heal and cicatrize than those in the Arms, the former are now pretty generally disused; and in the main justly enough. Most Inoculators disapprove them, from the Inflammations that generally attend them; and doubtless there ought to be some better Reason for inflicting a tedious Ulcer on the Patient, than the consequent Protraction of his Surgeon's Attendance. Nevertheless I have imagined, that a reflecting Physician

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may

* Since the writing this, a Correspondent from *Southampton* informs me, that Infection by Issues was the late general Practice in *Blandford, Dorsetshire*, where they lost three out of 309 Inoculated. It may sufficiently obviate Dr. *Fuller's* Misapprehension concerning them in Scenes of variolous Infection; he was for drying old ones up, if it might be conveniently done, supposing they might let in variolous Matter without manual Application.

may sometimes incline to an Incision in the Leg, where the Patient's Age and Habit, Complexion and Teguments, made him apprehensive of a plentiful Fuel. Such a topical Ulcer or two, in such a Patient, might certainly prove troublesome after the Disease ; but every other Indication must give Place to one truly vital : and wherever a great, or considerable Assimilation is expected, every Precaution must be used to solicit its entire external Discharge, and all possible Diversion of it from the Face too : since if the external *Carotid*, which is ramified over that and the Scalp, transmits a considerable Quantity of the variolated Blood to the Surface of the Head, it is to be feared the internal *Carotid*, springing from the same Trunk, and going to the Brain and its Membranes, may be, in some corresponding Proportion, loaded with it. Now if the Stimulation at the Incisions has the derivatory Consequences, all Writers on this Subject have allowed ; which (abstracted from Preparation, &c.) is probably the critical Advantage and very Hinge of Inoculation, a stronger Revulsion from the Head may be expected from these Ulcers in the Legs ; since the descending Branches of the *Aorta*, as the *Iliacs*, and their Divisions again, will probably from hence be charged with a greater Proportion of the variolated Blood, to the Ease of the *Carotids* and *Vertebrals*, which can certainly be attended with no bad Consequence. A greater Suppuration from these depending Issues, on the Maturation of the Pustules, will be another salutary

tary Consequence; as that has been supposed, by some, one preventing Cause of the secondary Fever, which so seldom occurs by Inoculation, and whose Absence is so essential an Advantage of it. But after all, we apprehend it will *seldom* be necessary to inflict these Incisions in the Legs, which in some Habits may be attended with very tedious and disagreeable Consequences.

It may be useful here to consider, Why the Character and Degree of the Small Pocks should be estimated from their Quantity and Appearance in the Face, which SYDENHAM observes, and Experience has confirmed, it is right to do; tho' I cannot recollect that any Writer has explained the *Rationale* of it. This, however, a very unstrained Extension of the Analogy between the Distemper and vinous Fermentation will conduct us, I had almost said, to a certain Discovery of. For as the febrile State of the Blood in the *Apparatus* corresponded as strictly with * vinous Fermentation, as was possible between a vital and a vegetable Fluid; so Eruption as closely answers to the Distillation recurred to, after a certain Term and Degree of Fermentation, for separating the more active, sulphurous, and inflaming Particles of the Liquor from the more phlegmatic and weak. Now the volatilizing Operation of Heat, one of the most grand and efficient Processes in Nature, consists in such a Subtilization of the Particles of its Subject, as renders them lighter than our common *Medium*, the Air, thro' which

* See P. 73, 74.

which they then necessarily ascend with different Velocities. Hence, as what first rises in the Alembic, and, after Condensation, runs from the Worm, is so flagrant, that it must prove deleterious in a very few Ounces alone; so in Eruption, the Pustules that appear first, and very generally about the Face and Neck, pretty certainly contain the most inflamed and volatilized Principles of the Blood: and if the augmented variolous Poison is, as some have imagined, also exalted in the Habit, it seems likely, that its most energetic, its most flaming Particles will be attached to such Principles. Hence a copious, quick and fiery Eruption in the Face will too certainly indicate an exquisite and fatal Dissolution of the vital Consistence of the Blood. Thus the very learned HALLER justly observes, the most volatile and active *Miasmata* break out in the Face. The whole Passage well deserves a * Reference: And in a former Disorder of my own, which terminated in a liberal *Diaphoresis*, I experienced the Certainty of it. Perhaps it is difficult to assign a better Reason than this for the Pits and Scars of the Face by this Distemper, while the rest of the Body is very generally † unmarked. But if the

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* Validas hinc particulas, et motus sui tenaces, caput adire non improbabile. Nonne id demonstrat argenti vivi effectus in solo fere capite? spirituum inebriantium velox in caput potentia? camphorae vis stuporem brevem excitans? calor faciei et sudor frequentior quam in ulla parte corporis, miasmatum summe volatilitum in facie eruptio? — *Prim. lin. Physiol.* § 339.

† Some have imputed these Marks to the Face being more exposed to the cooler Air than the Body, which indeed seems inclosed in a kind of warm relaxing Bath by the Covering, that
may

Eruptions are distinct, gradual, and mildly complexioned there, we have little Reason to apprehend, that the latter Runnings on the Trunk and Limbs, tho' numerous, will be pregnant with more virulent Contents: since it has been manifest from the different Symptoms and Event of the Disease, in Patients under equal Eruption, that the *Pabulum* may be nearly of the same Quantity in two Habits, yet naturally, and sometimes from Accident, less acrid in one than the other. But that the most acrid are very generally first emitted in all is evident in Fact, from the frequent Remission of the Fever, and most of the Symptoms, on the first Day of Eruption, and not seldom, in a mild Disease, within a very few* Hours

may concur, at least, to this visible Difference. They affirm too this Pitting has been prevented by applying Gold Leaf over the whole Face after Eruption. I confess my own Dread of any Attempt that may prevent or obstruct the Transpiration of the morbid *Effluvia*, and particularly of those from the Face. The chief Occasion for this Device would be in a confluent or coherent Pock, for a few and distinct scarcely ever deform; and checking the Transpiration of a very few would seem less dangerous. But in a threatening Degree of this Disease, I should be fearful, that such a Practice regarded the Preservation of Beauty only: and yet perhaps some Beauties, under the Apprehension of so dreadful an Eclipse, may willingly hazard the Experiment.

* I have seen some Years since a remarkable Instance of this by Inoculation. Miss FREEMAN was affected in the *Apparatus* with a considerable Propensity to Vomiting, and had a quick febrile Pulse. Visiting her the tenth Morning from Inoculation, her Pulse was calm and all her Symptoms vanished; whence I concluded, tho' it did not visibly present itself, there must have been some Eruption; and, upon a closer Inspection, I discovered two Pustules. She might have about 50 in all, but not a Moment's Sickness after these two. Nor is it difficult to conceive, that even before actual Eruption, whenever all the infected Particles are so far extruded into the Ducts, that terminate in the Surface,

Hours after its Appearance. Where we are pretty certain of Eruption then, does not this suggest a temperate and diluting *Regimen* in the *Apparatus*, and no such Intension of the morbid Heat, as may augment its depredatory Operation? That we are to avoid direct and palpable Refrigeration in most variolous Cases, is from another Motive, *viz.* that the assimilated Particles should meet with no Obstruction in their Expulsion to the Surface, after they have remained for their ordinary Term within; lest, at so critical a Juncture, their mortal Retrocession or striking in, as it is called, should be the Consequence. Moreover, besides the greater Virofity of the earliest Eruptions, their very Situation may be a perilous Circumstance; since on a sudden Sinking of the Pocks, a premature Detumescence of the Face, or an insufficient Suppuration there, a more sudden Translation of the Poison on the vital Nerves may be apprehended. Hence if we could, where Bleeding is indicated in the *Apparatus*, by taking it from the Foot, and by tepid Bathings and gentle Frictions of the lower Extremities, invite some Portion of the earlier Eruption from the Head, it might be compassing a very salutary Point, which I sincerely think I have seen effected: and which appears to me so essential a Point of Practice, that I hope my Attention to the Reason of it will excuse

Surface, that they cannot retreat into the reflux Veins (to be secreted by any of the visceral Glands, or glandular Texture of the Brain) all internal Sickness must cease. This Period may be called the Term of Extrication, to which Eruption speedily succeeds.

cuse this Digression from the immediate Subject of this Section.

From an Observation of the Benefits of a free Discharge, our most experienced Inoculators probably extended their Incisions to the Length of an Inch. Whether it were from the same Reflection that they inoculated both Arms, or with a View of making the Scratch appear doubly operose, I cannot determine; but possibly there may be some Reason for not making two indiscriminately. Dr. BUTINI of *Geneva*, in his *Traité de la petite Verole*, justly remarks, that the Advantages resulting from a free Discharge should not be lessened without some particular Reason; adding, the Bandage may slip from only one Arm oftner than from both.* The most alarming Subjects, I confess, would dispose me most to two Ulcerations: but in Subjects, where a moderate Assimilation might reasonably be expected, one may be sufficient: and in very young ones a smaller Orifice might answer as well. They are generally disposed to spread and dilate in the Course of the Disease, which is no bad Hint of their Service. The Incisions may be made with very little Pain. I have seen a Girl about three Years old scarcely wince for one; but have heard that a few, who were apt to be convulsed almost at the Sight of a Lancet, and could not be chea-

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* My more imperfect Acquaintance with the *French* Language, when I first published this Treatise, made me mistake (P. 156 first Edition) the Sense of this Passage in this Gentleman's rational Treatise; of which I since made a publick Acknowledgement in the *Journal Britannique*, by Favour of my Friend Dr. MARY.

ted into an Incision, have had a slight Vesication or two raised by a little *Cantharides*, or Epispastic, applied within the Slit of a closely adhesive Plaister, and the *Pus* was applied after cutting and removing the Cuticle and Slough. This is considerably more painful ; however there is little Fear of the Insect counter-working the Infection.

But having been invited to *Paris* in 1756, on Account of Inoculation, I must take Leave to expatiate a little on this Method of infecting, by Vesication or Blister, which was the only one made use of by the learned Dr. TRONCHIN of *Geneva* there, who successfully thus infected the DUKE of CHARTRES, and MADAM MONPENSIER, Son and Daughter of the DUKE of ORLEANS, with eight or nine others, to the best of my Recollection. For the Satisfaction of the DUKES of ROCHFACOULT and d'ESTISAC (the former of whom, as a *French* Patriot, was at the Expence of lodging and fully accommodating five poor Children, as so many Tryals of Inoculation) I attended and infected the five *Gratis*, the three oldest of about seven Years old, by Incision, the two youngest of about three, by Vesication. The Girl by Incision had a pretty moderate, but very kindly, sprinkling, the two Boys very few : the two by Blisters, a Boy; and Girl, rather less : *Dudis* a very fair delicate little Boy, not having above three or four, all of which had not Matter enough to infect one Patient. Neither indeed was there any Thing to be called Suppuration from the vesicated Spots of either of them,

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but a Redness attended with considerable Soreness, and sensible Exudation or Moisture. It was performed, after the vesicated Cuticle had been removed, by applying the infected Thread, rolled up in a small flat Circle or Coil, to the denuded *Cutis* or Skin, and keeping it on by a mild, and moderately adhesive, Plaister, or a Compress and broad Fillet. This little Coil contained a Thread at least four or five Times as long, as what is ordinarily used to infect an Adult by a single Incision ; for I have known Children often infected with one of about a Quarter of an Inch : and doubtless an infected Pledget would have been a more convenient Application here, but our Matter had been already collected in Threads. Beside, as no Blood-Vessel was opened in this Way, I imagined a greater Quantity of *Pus* might be necessary, which the Consequence shewed to have been by no means excessive.

These different Methods of giving the Small Pocks, produced some Dispute among the Faculty at *Paris*, as to the Preference of either ; a Majority, (at least among my few Acquaintance) of those who approv'd the Infection by Art, preferring it by Incision too. For notwithstanding all those infected by Vesication recovered in common with the Inoculated ; and by what I have heard, might, upon the whole, have a smaller Proportion of Eruption, (MADAM WALL, a beautiful young Widow prepared and inoculated by Dr. Hosty solely, having had a Confluence with the usual violent Symptoms) yet as the Suppuration

was affirmed to be seldom so consistent or compleat in the vesicated, a few Disorders, tho' attended with no lasting bad Consequence, happened to a few of the most important Patients thus infected. Dr. PETIT, the DUKE of ORLEANS' domestic Physician, informed me, that MADAM MONPENSIER had an Inflammation in her Eyes. I heard, at the *Hôtel de Belleisle*, that the DUKE of *Chartres* had a small Degree of a *Hydrocephalus*, which some ascribed to changing his Cap too soon: and Dr. *Hosty* told me, the DUKE of *Estillac's* Son, Grandson to the DUKE of *Roche-facault*, had a Sort of erysipelatous Eruption after the Conclusion of the Small Pocks by Vesication. On the other Hand, as the late COUNT of *Gisors* passed through a very regular and benign Disease, with a copious, but very distinct Eruption, and laudable bright Suppuration, by Incision, without the least impairing or confining Consequence (having been purged the eighteenth from Inoculation, and going very alertly abroad with about fifty red Spots, but scarcely one Pit in his Face) the *Parisians* said in general, they really believed him secure from a second Infection, which they often doubted of such of the artificially infected, in either Way, as had but very few: these Circumstances operated very greatly to the Preference of Incisions. For my own Part, I can conceive the Blood to be more thoroughly depurated and discharged of the variolous Humours in this Way than by the Blisters, in which only the Extremities of the miliary Glands, and of a few

few Lymphatics are exposed to imbibe the Matter. Wherever we open either a venal or arterial Capillary, we are certain there is Lymph or *Serum* as well as red Blood; tho' the latter is naturally excluded both from the Lymphatics, and the excretory Ducts, as well as from the convoluted and secretory Canals, of the Glands. Hence I am satisfied a greater Proportion must fail of receiving Infection in this Manner, than that which ordinarily happens by Incision; and I should suspect such, as had but a very few Pustules after Vesication, to be rather more exposed to a second Infection, than those who had an equal Number by Inoculation, with a proper Inflammation of, and Discharge from, the Orifice. I have strictly represented the State of *Dudis's* 3 or 4 Pustules, and I heard that at least one of Dr. TRONCHIN's Patients, whose Name I have forgot, had as few, and them few as obscurely. It is certain however in Fact, that this Vesication will generally and safely impart the Small Pocks.

The very learned and elegant Dr. SENAC, having been desirous of seeing the Preference of these two Methods discussed (and probably for some very important Reasons) I did myself the Honour of addressing a latin Letter from *Paris* to him on the Subject, after I had waited on him at *Versailles*, with a Copy of my former Impression. It contained in Substance these Arguments I have here abridged; remarking (as one Argument tending to prove the Blood's being less thoroughly despumated in Consequence of this Blister

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ter than of Incision) the much greater Relief received, in a severe Attack of the Small Pocks, from a natural and moderate Bleeding at the Nose, than from a much greater Quantity of Urine; even though it should prove more concocted than it generally does, at the Invasion of the natural Disease. But I refer the learned Reader to the Letter at large in the Appendix; intreating his Indulgence also, for my inserting there a latin Compliment, upon his Inoculation, (for I owed him a great many) to the accomplished, the brave, and truly amiable * COUNT of Gisors, to whom I was indebted for some very distinguishing

* This very deserving young Nobleman, whom I have heard proposed in *France* as a Model for those of his own Rank and Age, I had the Honour of solely preparing and inoculating, about his 24th Year. Dr. Hosty also attended throughout the Distemper, and was very useful as an Interpreter; but the Difference, I conceive, of the Count's final Behaviour to us sufficiently demonstrated, on whom his own Confidence, and that of his noble Friends, rested. Nevertheless upon the general Satisfaction, which his quick and perfect Recovery occasioned, as he was so greatly esteemed; and indeed it was impossible to know him well (abstracted from any personal Obligation) without honouring him, Dr. Hosty and his Friends spread a Report, that he had prepared and inoculated the COUNT of *Gisors*, and that I attended the Count under his Directions. A worthy elderly Gentleman of my Acquaintance at *Paris* heard this, particularly at the DUKE of FITZ-JAMES's, at whose *Villa*, among other Places, it had been industriously propagated; and after informing himself from me of the Truth, the very honest old Briton set it right there. Now as all my Prescriptions for the Count were at Mr. ROUEL's (I think was the Name) Apothecary *Rue Jacob*; and as Mr. Hosty himself had told me, he would leave the Preparation and Inoculation of the Count entirely to me, there is no Doubt, if the Event had been fatal, but he would have told the real Truth, and have avowed he had contributed no otherwise to it than by looking on; and so have left me to get off as I could; having told me, that if
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tinguishing Honours at *Versailles*, and much Amity, exerted in that delicate and preventing Manner,

the Count died, he would not make the last Visit. What the Consequence of this, from a Practice approved only by a few, might have proved to myself, in an Enemy's Country, and in Regard to a very popular young Nobleman, an only Child, and greatly beloved by his Domestics, I really cannot determine: but I shall never forget what the Count said to me one Night alone, sitting by his Bed-side, when he found himself past every Apprehension of Danger. The Words (we generally conversed in Latin) upon my Integrity were, *Quid faceres si mortuus essem?* To this I answered, after a very short Pause — *Forſitan ipſe etiam moreretur*: To which he replied negatively, *Non, non*, or *Bob, Bob*. I cannot certainly recollect which; but I remember perfectly well it intimated, that it would not have been quite ſo bad neither. This however I am very conſcious of, that I ſhould, in ſuch a Caſe, have willingly compounded for my Baggage, having lived with the Count throughout the Diſeaſe, and ſome time after it, at *Varſovie*, a Houſe juſt without the *Barriere* of *Paris*, hired for his Inoculation.

When the *Bulletins* (a ſhort Bill wrote every Morning and ſigned by the attending Phyſician, concerning the preſent State of a Patient of great Quality) were iſſued, upon the Count's Sickening, Mr *Hoſty*, after talking with me each Morning, as of Courſe, about his preſent State, uſed to write the Subſtance of it in French, and after a Clerk's making a ſufficient Number of Copies for the Servants of all Enquirers, ſubſcribed his own Name, without deſiring mine. The good Count hearing of this, and enquiring why Dr. *Kirkpatrick* had not ſigned the *Bulletins*, Mr. *Hoſty* told him, it was to protect me from being proſecuted by the Faculty of *Paris*, for attending without being free of it. Of this I had not the leaſt Apprehenſion, having met with the greateſt good Nature, Generoſity, and Politeness from every Member I had ſeen of it, except himſelf; having even been requeſted by ſome of them to return to *France*, and eſtabliſh the Practice. The Count answered, he was unacquainted with the Cuſtoms of the Faculty, but deſired I might ſign the *Bulletins*, ſent to the *Dukes* of *Belieſſe* and of *Nivernois*, and all his Friends. After this Command Mr. *Hoſty* uſed indeed to aſk me to ſign, having the Modeſty and Politeness to leave Room enough for me to ſubſcribe below him; (and at the ſame Time ſent *Bulletins* ſigned only by himſelf to moſt of his own Acquaintance.) This however I made no Scruple to do, after

ner, which must endear the lightest Benefit to every Man of Reflection. His heroic Fall at *Crevelt*, of which a Line in the Compliment seemed a little prophetic, has, within my own Knowledge, made him even lamented by some of his gallant Enemies, whose generous Feelings dispose them to reverence true Fortitude universally.

Hoping Pardon for this partly necessary Digression, I recur to the earliest Methods of Incision, by observing, that as the *Greek* Woman made her Scratches somewhat oblique, Mr. BOYLSTON of *New England* made them quite transverse, and I have seen one such Orifice in *London*. What the

ter a very plain Remonstrance of his Behaviour to a Man, whom he had earnestly and repeatedly solicited by Letters into *France*; and who brought a Recommendation of himself to the Count, from his worthy and ingenious Friend Dr. MARY here: upon Reading of which the Count immediately said, he hoped I had met with the *Politesse* of *France*, and that he would be inoculated whenever I thought proper. He was 3 or 4 Weeks preparing for the Disease, throughout which we had but one obscure Day, towards the latter End of Eruption: but this Heaviness over his Eyebrows, for he never had any *Delirium* nor Vomiting, was removed the same Evening by a natural Hæmorrhage from the Nose, of a Spoonful or more. The ensuing Course of the Disease was so void of Danger, as to render our noble Patient and all about him chearful. On these Occasions a Man of moderate Observation might discern, that the Count's unaffected Delicacy and Sentiment could have willingly excused my Colleague's coarse and frequent *Entendres*, and the incessant Horse-Laugh with which *himself* applauded them. In truth the Count was too condescendingly polite to repress them directly; but a good Distinguisher of Smiles might justly ascribe his, at such Junctures, much oftener to Contempt than Approbation. It were easy to make proper Reflections on these certain undisguised Facts, to which I could as truly add many others, tending to the same unfair and grovelling Purpose. But I submit these few simply to the Opinion of the Publick, not without an Apology for my having intruded so much with Regard to myself, in a Treatise intended for their general Service.

the Operators proposed by this, or whether they considered it merely as indifferent, they can only say. Possibly they concluded such an Incision might be disposed, of itself, to a more fretful and inflammatory State, and thence terminate in an Ulcer discharging more than that from a longitudinal one; and, if this were not the Reason, it is difficult perhaps to assign a better. But we may observe here, that as the Lips of such an Orifice would be apt to retrocede or gape more than the other, and that Bandage would not dispose them to meet, their Retortion or Spreading would be less significant of the Infection's having taken, than it is in the other; which is equally applicable to their Inflammation too. And notwithstanding there can be little Doubt of Infection's succeeding this Way, as BOYLSTON's Patients very generally took (tho' it could not be said that one certain Pustule ensued from this transverse Incision in a Child of six Weeks here) yet those, who are uneasy about the ulcerous State of the Incisions after the Disease, may well incline to prefer the longitudinal ones, the present general Practice.

With Regard to the Depth of the Incisions (which are made over the Contiguity of the *Biceps* and *Brachæus internus* as commodiously as any where; and on the Place for Issues in the Legs) TIMONI says, the Skin is to be ript up a little transversely. PYLARINI says, the Women separated the Skin a little from the Flesh: this seems as if they went thro' the *Cutis*. Dr. NET-
D d TLETON,

TLETON, who lays little Stress on the Length of the Incisions, thinks if they are so deep as to cut thro' the Skin in the Middle of the Incision, they discharge the more. I do not find that our first Operator, MAITLAND, says any thing of their Depth. Some eminent Surgeons at present seem to make a Point of cutting into, but not thro', the *Cutis*, so as to expose the cellular Membrane. And this it is said they do to prevent the Sloughs, that separate frequently when that Membrane is laid bare; and which, they suppose, render the Ulcer less tractable after the Disease. Such Incisions I have seen, where the Infection has been effectually communicated, but imagined that, in general, they afforded a smaller Discharge, than those which but just expose the adipose Membrane, by dividing the *Cutis*; very few of which I have ever known unkindly after the Termination of the Disease, and the customary Purges. Besides, if Dr. GRASHUIS is right in concluding this Membrane the Seat, and the *Adeps*, in a great Measure, the Subject of Suppuration, it will be no bad medical Reason for reaching it. But undoubtedly the least membranous or fleshy Fibre of a Muscle should be carefully avoided, as the stimulating Matter, admitted there, might erode the *Aponeurosis* and Substance of the Muscles, and produce a troublesome sinuous Ulcer. This was very probably the Case of a young Gentleman near *Maidstone* in *Kent*, who, with a favourable Small Pocks by Inoculation, had an Arm so terribly ulcerated,

that

that an Amputation was apprehended, tho' at last it proved unnecessary. And besides the Hazard of such a Consequence, we have already * hinted the Imprudence of infusing the *Pus* immediately into any larger Vessel, whence it might be less gradually diffused thro' the Mass. The *English*, who may justly be considered as the Improvers or Reformers of this Operation, have rendered it much simpler, and less painful and tedious than it was in *Turkey*. They find no Occasion for mixing the *Pus* carefully, as the *Grecian* Inoculatrix did, with the issuing Blood; if the smallest Appearance of the latter stain the Skin, they find their effectual Commixture almost a perpetual Consequence. The Threads, whether of Flax, Cotton or Silk (tho' the two former are chiefly used with us) may be conveniently imbued by threading a Needle, edged or even round, with one not too fine, and doubling it. This Needle is to be passed thro' two or three well digested Pustules; tho' I have sometimes obtained Matter enough from one, very ripe and turgid, to infect two or three Subjects. A Length of such Threads equal to that of the Incisions is to be inserted into each. Over these the Inoculator applies a small Pledget, armed with a † Digestive;

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and

* See P. 69, 70.

† I have heard a very sensible Physician disapprove the Application of the Digestive at first, as supposing the little early Suppuration may partly depend on it, and so become less significant of the *Pus* having taken. Undoubtedly it is not an essential Application at this Time; and yet as an unarmed Pledget, or naked

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and on this again a small simple Plaister. An easy Roller may be applied for a Security to the Dressings, tho' I have known the Plaister keep the Matter on effectually. Some let these remain on one, and others two Days ; but we shall find a small Difference here immaterial ; tho' perhaps two Days may make us a little more certain of the Efficacy of the Application than one.

From an abundant Caution, which I have always observed, the Patient is directed to keep an Handkerchief over his Nose and Mouth, 'till it is applied. The *Greek* Inoculatrix had the Matter brought, and, we are to suppose, taken, by her Servant ; and some have been said since to use the same Precaution ; lest, if the Person, who infuses the Matter, had also taken it just before, which they thought essential, there might be some Danger of his giving the natural Infection previous to the artificial. There can surely be no Error in great Caution on such important Occasions ; and it was certainly thoughtless in the Father of the *Tripolitan* Ambassador, to send his Children to be inoculated at the House of the Infected ; lest the Matter should cool perhaps. But we must observe, that our reserving the Contagion in Threads (which we shall prove, may be suffered to dry too) instead of taking it in Shells and Phials as they did, and pouring out Drops of it, is not near so likely to diffuse natural

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Compress, is sometimes apt to stick to the Orifice, from a Drop or two of Blood issuing upon and hardening them, I think it may save a little Pain, and is therefore rather commendous.

Contagion. Besides, a Quantity of it kept in a liquid Form may putrify, as most extravasated animal Humours do; when it may be doubted, whether it will give the Small Pocks, and whether it may not give something worse: as we see the Humours of an Egg rendered so acrid by Putrefaction, as to become violently emetic, and it has been said deleteriously so, on swallowing a very small Quantity; and what it might do, on being infused into the Blood, we can only surmise.

These Drops naturally lead me to consider the necessary Quantity, or Dose, of Infection; and the rather, as some of the early Opposers of Inoculation, and particularly Dr. WAGSTAFFE, have insisted on the Uncertainty of the Dose of variolous *Pus*, requisite to different Ages and Constitutions, as a material Objection to the Practice. But these Objectors would have been prudent in reflecting previously, how they could ascertain a proper Dose of the natural Contagion, or determine the Quantities received by different infectious Accidents: since this Objection makes very strongly for Inoculation, if the *Quantum* of Infection be truly material, as the artificial may admit of a pretty exact Ascertainment, the natural of none. Now certainly the most obvious Supposition in this Respect must be, that a Person exposed to the *Effluvia* of a Patient under a full Suppuration from this Disease, is likely to receive a greater, a more suddenly and violently operative Dose of Infection, from a Stream, or even a Ray,
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of its most volatile and disentangled Particles, than from a Thread imbued with the animal Humours involving them.

We are happy enough however, in the equal Success of very different Doses of this involving *Pus*, to be convinced that this is not the capital, the most interesting, Circumstance relating to the Operation. A single Spark will explode a Magazine, and a Firebrand can do no more. The *Greeks*' numerous Drops and Incisions, and *Maitland's* three largely imbued and repeated Pledgets on each Malefactor, terminated successfully ; and very much less has sometimes excited a considerable, and even a mortal, Disease. However, as the Application of more than is necessary is at least indelicate, let us contemplate, if we can, that Exility of Infection which has sometimes sufficed. The worthy and ingenious Dr. NETTLETON, who interested himself early in this Practice, from a benevolent Principle, informs us, that having found it troublesome to collect such a Quantity of the Matter, as to infuse two or three Drops of it into each Wound, of which he made three, he secured a small Pledget of infected Cotton on the Wound. We may suppose he was not long solicitous about the Moisture of his Pledgets, when he avers his Surprise, that the Quantity of *Pus* received into the Vessels could not amount to the hundredth Part of a Grain : from whence we may moderately conclude, the Dose used at *Constantinople* sufficient to infect above a hundred ; and if we suppose the

the Weight of a full Drop of this *Pus* to be a Grain, it will make it sufficient for many Hundreds. But further, the extreme Exility of the Particles of efficacious infecting Matter will be so evanescent and inconceivable, as scarcely to allow the Imaginations' investing it with a material Form. For in Fact I have known such a scarcely discernible Particle of *Pus* infect, that I never saw, nor heard of a Balance exquisite enough to ascertain such a Fraction of a Grain; as it must have been: and if we reflect, that this was but the Vehicle of Infection, our Astonishment must still be heightened. Yet as some of the various *Pus*, or the *Miasmata* involved in it, must be immitted and received, tho' in a minute Quantity, to infect; it is evident that the infecting Threads may be passed thro' one or more ripe Pustules; that they may be cut into any requisite Lengths; and be of what Number or Thickness we chuse. It is possible perhaps to weigh a pretty long, or, if short, not very slender Thread, while yet uninfected, and after it has been imbued, which may be cut, either while moist, or after it is dry again, into such imponderable Lengths of one Inch or less, that Infection may really be divided into very minute Fractions of a Grain; and then be dosed out, not only to different Ages, but to our Apprehensions of the Quantity of inherent Fuel: since it may seem eligible, to some, to apply the smallest Proportion of the former to the greatest of this; and to distribute it into two Incisions, for the

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Purposes of a double Stimulation and Discharge. This is certainly the best Reason for making two, and not the Apprehension of a single one failing; since if there be Fuel in the Habit, and the Spark is applied to it, one will take, and if there is none, two will be ineffectual. But after all, as some Few have failed of Infection, where there has been Reason to suspect an over-acted and simpering Delicacy, in a very superficial Scratch, and the Application of the very smallest Quantity possible of Matter : and as such Disappointments are productive of considerable Anxiety, to the Patient at least, good Sense will sufficiently instruct every one who has reflected on this Subject, that if the Incision is not so deep as to violate or expose any Fibre of a Muscle, or of its Membrane, an extreme Solitude about its being more superficial is unnecessary : and further, that tho' a very small Quantity of the *Pus*, if insinuated, will infect, yet a little more is not likely to have any accumulative * Effect ; in short, that the present Constitution and Temperament of the Person receiving is the grand affecting Circumstance.

But whatever be the requisite Quantity of this Infection, it may be asked, how long its *Medium*, or Vehicle, should remain within the Wounds. TIMONI says they were to be covered a few Hours, to prevent the Cloths from rubbing off the Matter. PYLARINI says a Bandage was applied, but does not add how long it remained before it was first removed. We have just observed that

* See P. 210.

that some let the infected Threads or Lint lie on 48 Hours ; others 24, after which some have turned the external Part of the Lint to the Bottom of the Orifice ; and all have found the same infectious Consequence without any sensible Variation. But that the Principles of Infection are as speedily absorbed in this palpable Vehicle, as they are inspired in their aerial one, and perhaps strongly attracted into some receiving Bodies, seems probable from Dr. NETTLETON's informing us, that he has sometimes rubbed the Pledget only once over the Wound, without binding it on, and found the Purpose sufficiently answered. Serjeant RANBY, who has been long engaged in this Practice, to the Benefit of many Persons of high Condition and Consequence, and to whom I have had some Obligations upon this Subject, (for which I have constantly cited him) and on a few other Occasions, has favoured me with the following Fact on this Point.

Having inoculated a Widow Lady of 30, and calling next Day to remove the Dressings, she asked his Opinion, whether the Pock had taken ; and, being answered in the Affirmative, appeared satisfied, and passed thro' the ensuing Disease very favourably. But on her entire Recovery, and discharging all her medical Attendants, she informed them, that in a very little Time after the Operation she repented of it, and removing the infected Threads soon after Mr. RANBY's Departure, put in common ones, and applied the former Dressings over them. It seems indeed

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that we may reasonably extend what we said on the Quantity of Infection, to the Term of its Application too, *viz.* that a short Contact will probably be sufficient, and a longer but equivalent : which double Position may be similarly verified by a former Instance of my own Knowledge. The learned Dr. MATY, Author of the *Journal Britannique*, doing me the Favour of accepting a few Visits to his three Children, before and after Inoculation, which Dr. D'ARGENT, then practising Surgery, performed, in one Arm each; on removing the Dressings, there was some Doubt, whether the Youngest, of near three Years old, had taken, as her Arm was less inflamed than her Brother's or Sister's; tho' I remember I judged it had. It was agreed however to procure a little more Pock, which was applied one or two Days after; notwithstanding the Inflammation then became a little more evident. She sickened no sooner than the others, having the mildest Symptoms and fewest Eruptions of the three. Here a second * Dose, which made the Application twice as long, was not attended with the least accumulative Effect; and the smaller Inflammation, as all the Incisions were superficial and pretty equal, was certainly owing to this tender Subject's containing the least variolous Fuel.

It is curious to investigate, and may be useful to discover, the utmost Term for which the variolous

* The Malefactors, inoculated in both Arms and one Leg August 9, 1721, received fresh Matter on the 12th following. Maitland's Account P. 21.

riolous Principles may be preserved in any Material, with sufficient Efficacy to effectuate this Operation. For tho' it may be always recently procurable here, more or less, that is not the Case in Country Towns, Villages or Seats, where People might desire the Operation for themselves or their Friends, and yet be unwilling to go for it, where the Disease actually existed. Here it should be observed with Gratitude, that Providence seems to have regarded even the Circumstances of Individuals so situated and disposed: as we have certain Demonstration that the *Pus*, however dry, and very probably even when friable, in Threads or Lint, retains an efficacious Vigour for several Weeks; for a Term sufficient to convey it a few thousand Miles at least, tho' we are as yet unacquainted with the exact Commencement of its Inactivity. Materials containing the Cause of the Plague have been considered as incommunicative of it after a Twelvemonth; but I conceive this to be on a Supposition, that the infected Materials were not packed up close, which may make an important Difference: since Air itself, however pure and simple, from very long Confinement and Stagnation, has become putrid and morbid. But let us suppose the Efficacy of the variolous Vapour to be preserved as long by Care, as it is without it, and sometimes is, in Spight of our Carefulness to extinguish it. This will extend it to several Months. I knew one Instance of a Gentleman being infected on

entering a Room, full three Months after a Person had lain there in the Disease. A Surgeon of my Acquaintance effectually inoculated two Children of a Gentleman's at *Endfield*, with Pock taken to my Knowledge from a Child inoculated in *London* a full Month before. A Woman is said to have been unwarily inoculated at *Lindfield*, by being bled with a Lancet used in taking Pock nine Days before. I have used it frequently several Days after taking, from a Fortnight to full two Months, and found its Operation very generally commence about the ordinary Term, and in the common Way. The COUNT of *Gisors* was infected with Matter taken fifteen Days. Dr. BUTINI affirms, it has been kept effectually at *Geneva*, where Inoculation is now happily introduced, full four Months: and it may perhaps appear * hereafter to keep for a longer Term, which

* This Conjecture has been verified since in the following Manner. Looking one Morning over some infected Threads, kept in labelled Phials and dated, I found a pretty long one taken in *May* 1751 from Mrs. *Sarah Eaves*. It was no ways mouldy, but very little altered in Colour; and having been well impregnated, was stiff, and somewhat springy like Wire. As I imagined it might be effectual enough to impart the Small Pocks, I gave rather more than two Inches of it (from a Reflexion on its Age) to a particular and curious Friend, who had the Care of a Work-house, in which were a few Children, wishing him to try it the first Opportunity. He passed it soon after, in the Manner of a Seton, through the Skin of a young Child's Arm, moving it about each Day, like a Seton. The Child sicken'd on the 6th from Inoculation, and had Eruption on the 8th; having I think in the whole, rather more than two hundred, but did very well, as did also a few others who apparently caught the Disease from this one. This Matter was applied in *April* 1757, so that it wanted but one Month to be full six Years old. To suppress no pertinent Circumstance, the natural Disease had been in the Work-house about five
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which some Gentlemen have imagined might conduce to its milder Operation ; tho' this seems rather conjectured, than established on adequate and specific Facts ; and certainly the best Reason for keeping it is to prevent a Disappointment, when good fresh Matter cannot easily be procured. We have sufficiently evinced, however, the superfluous Care of conveying it immediately from the Decumbent to the Expectant, and of keeping

or six Weeks before this Child's Inoculation. But as neither himself, nor any of the other Children had sickened in all that Interval ; as his inoculated Arm inflamed and discharged abundantly ; as he was taken down about the ordinary Term ; had the Symptoms, for the Quantity in a meer Infant, mild, as by Inoculation ; and as none of the other Children sickened till a few Days after his Pock turned, my Friend concurred with me in ascribing this Disease to the Infusion of this Matter ; which Opinion however is fairly submitted to the Reader, on this certain and undisguised State of the Case. But the Duration of this Matter was very short, if compared with that related to a creditable Friend of Mr. CHAIS, by an English Lady, || who was assured by a Bengalese Physician, that inoculated two of her Children at *Bengal*, that he had then by him some variolous Matter preserved in twisted Silk, which had been taken by his Grandfather or Great-Grandfather. It is not said indeed that these Children were inoculated with this Matter : and tho' we give entire Credit to the English Lady, an equal Credit to her *Indian* Doctor is not a necessary Consequence. Silk indeed being a wonderful Gum, further concocted and elaborated by an animal Body, may be peculiarly adapted perhaps to intangle and retain this volatile Poison for the longest Term possible : and I have now a little Matter taken in red Silk, *July 2, 1757*, which I really think would infect. But this Thread I have before mentioned was of Flax ; and whenever I have found the infected Threads prove mouldy, or dusty as it were, from whatever Cause, I have never used them ; as I supposed the volatile Poison must escape, whenever the Cohesion of the viscous or unctuous Matter intangling it was plainly destroyed : besides my Ignorance of what Consequences might result from applying this putrid animal Powder or Dust by Incisions to a wounded living Body. See Page 205.

|| *Essai Apologetique*. P. 122.

keeping it warm during the short Interval : as we continually find the *Pus* from Inoculation, which the *Greeks* rejected for this Operation, just equivalent to that from the natural Disease. But on this Occasion, as on most others, we prove the Truth of the Axiom, *Artem experientia fecit*.

The earliest Intimation of the Pock's taking seems to be a little Itching at, or about, the Orifice : and upon uncovering it a Day or two after, there is often a little Matter on the Dressings, and a sensible receding of the Lips of the Wound, with a small Redness on each or either. Soon after there appears a kind of white skin-like Line, or dry Slough, longitudinally in, or rather over, the Orifice, which is considered as an infallible Mark of Infection. Serjeant AMYAND was for fixing this Appearance to the fifth Day, and yet I think it has sometimes, tho' not often, appeared earlier. I have known some the second or third Day sensible of a Tingling, as they called it, down to the Fingers of the inoculated Arm : and I remember a rugged Youth of Fourteen, who had, on the third, such a sudden strong Tug, or Contraction of the inoculated Arm, that he gave an instantaneous Spring from the Force and Surprise of it ; and from his Relation of it I could compare it to nothing so much as the electrical Shock. This Lad, who was bound to the Sea, but prepared on Shore, and, as we thought, under a proper *Regimen*, used to regale himself secretly, even after the Operation, with Slices of salt Beef he had the Art to procure from on Board.

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He had indeed a very large Crop of the distinct Kind, with the most plentiful Suppuration I ever saw by Inoculation ; yet was very soon as alert as ever, his many Pits being very superficial, and without the least Scar or Deformity. But where the Pock does not infect, there is an Absence of all these Appearances and Effects, of which I have seen a few Instances, that have been more particularly mentioned in another Place.

This Section, in the first Edition, concluded with an Apology to the valuable Profession of Surgeons, for my describing this little manual Operation. But as I am since informed, and indeed have known, that the Members of that Profession here in general get themselves employed in all the Circumstances previous to Inoculation, and indeed throughout the Whole of it, as exclusively as they can of every other ; they must admit, it becomes a strict Imitation, or just Retribution, of their own Conduct, that Physicians should cut or scratch for the Small Pocks, since they prepare for, and prescribe in it. For my own Particular, let every Inoculator inform himself so fully of the Nature and Treatment of this Disease, as to afford the best Service possible to the Patients he presumes to make, by giving it to them ; and I shall heartily wish all his Patients uninterrupted Success, whatever his own Arrangement and Denomination may be. It is not merely Names, but Things and their essential Consequences, that de-
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serve the Attention of all the Wise and Good : and it is certain, that the greater the Number of proper Subjects are, who shall be inoculated under all prudent Precautions, and with every judicious Advantage, this Nation must prove the more populous ; and consequently, while its Virtues continue or increase, the more happy and respectable.



SECTION VIII.

Of the most eligible Time of Life, and Season of the Year, for Inoculation; and of the most proper and improper Subjects of it.

AS we may frequently observe, that, in the Deduction of a System founded on Reason, and verified by Experience, after the Illustration of a few fundamental Principles, an intelligent Reader anticipates many subordinate Points, as necessary Consequences of them: thus, from what has been premised of the Nature of the external variolous Cause, of its Fuel in the human Constitution, and of that inflammatory Disease, that results from their Combination, every attentive Reader, methinks, would rationally infer (even supposing Experience to have been silent in the Case) that early Youth, and a bland Temperature of the Air, remote from either Excess of Heat or Cold, were Circumstances we should desire in the Contingence of this Disease, and consequently in the Communication of it. Yet obvious as this appears, to be rather culpably

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pably redundant than defective on the important Subject professedly treated of, we shall enquire into the Advantages and Disadvantages of the different Stages of Life, and of the different Seasons of the Year, for the Reception of, and all future Immunity from, this Distemper.

One considerable, and almost peculiar, Advantage of Childhood, or even of Infancy, for the Small Pocks is, that they cannot be supposed to have superadded any adventitious variolous *Fomes* to their native Portion of it. Whether this were the prevailing Consideration, that has determined some to recommend Inoculation to Infants at the Breast, and even in the very early Months, I am unable to say; tho' perhaps it were difficult to assign a better Reason for a Practice, to which there are some truly rational and medical Objections, besides such as are founded on common Prudence: some of which Objections become still stronger in Respect to Infants reared without the Breast, who will not on that Account be the more exempted from sore Mouths through the Eruption of the Disease; in which Situation the Want of that soft tepid Nourishment, and its soothing balmy Application to the sore Lips and Tongue, may be severely, or even fatally, experienced. Such, however, is our great natural Diversity of this inborn *Pabulum*, that I have known an Infant of six Weeks die under such a crowded Coherence, from natural Infection, that I was surprized to find, in a Subject of that Age, a sufficient Mass of Humours,

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and sufficiently fermentable, for so great an Eruption and Despumation; which very much exceeded that of all her five Brothers and Sisters, who were happily and easily conducted thro' Inoculation, about the same Season. An Instance considerably parallel to this occurred in the Family of GEORGE TASH, Esq; of *Ivor* in *Bucks*. The eldest of his six Daughters was married to CHRISTOPHER TOWERS, Esq; and took the natural Disease, of which she was very full, and, with great Difficulty, escaped thro' it. Her five Sisters, from seventeen to seven Years of Age, were inoculated by their Kinsman Mr. HARRIOT, with whom I had the Pleasure of attending them. The Distemper was entirely mild and easy, tho' certain and evident: and their Nurses declared they could not make out above 150 Pustules among them all.* In this

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* This amazing Difference of the Small Pocks by natural and artificial Infection, in Persons of the nearest Consanguinity (some entire Families having been obnoxious to the confluent, and others only to the distinct Sort) has inclined me to hesitate, whether the best Preparation and fittest Temperature of the Season could be solely adequate Causes of it. It is evident the Circumstance of Age was but little material here, the youngest out of twelve dying; the most advanced, who could not have a greater Eruption in Proportion to her Size, just escaping; and either of them certainly having more than the ten inoculated whom I attended. As I am unable then to investigate all the Causes of this surprizing Difference in Persons thus related, to my own Satisfaction (the Discharge by the Incisions being but seldom considerable before Eruption) I would recommend it to the Penetration of others to discover.— Whether the infused *Pus* may gradually effect such an Alteration in the Form and Consistence of the Blood, and from thence such a different Oscillation of the Solids, before actual Sickening, as shall concur to increase the Excretions of Perspiration and Urine, with or without a Variation

Instance indeed, invertedly to the former, the greatest *Pabulum* was the oldest too: and yet again

Variation of the Matter excreted, from that in an uninfected State. Any Alteration in the Quality of the Perspiration might too probably be indiscoverable by the human Organs, or even by Experiments; tho' the Urine, from 24 Hours after the Infusion, might be considered by a Physician, who for this Purpose had observed it repeatedly before Infection, while the Patient lived exactly in the same Manner. But the Quantities of each might be ascertained by medical Statics, and compared with those before Infection: and if there was a certain Increase of each, or even of either after it, while the other kept up to its usual Standard, it must plainly point to such a gradual Abatement and Discharge of the variolous Fuel, as would correspond to the comparatively small Eruption of the Inoculated; whose subsequent Security infers, that Infection assimilates all it finds: but what becomes of that, which does neither appear nor remain, is the Difficulty. Yet as constant Experience demonstrates, that the Pits in the Face from Inoculation are not so deep as from the natural Disease, and never rise to the Deformity of a Scar; may we surmise that Inoculation, before actual sickening, dissipates and expels, by some of the finest Emunctories, the most volatilized and energetic Part of this inherent Fuel? And will the * erratic Flushings that present and disappear, and the slight Giddiness, Lassitude, and little sickish Fits that sometimes occur and entirely vanish again, before the real *Apparatus*, reflect some Probability on such a Conjecture? — Further Time and Experience have since disposed me to reflect on the considerable Quantity of a farinaceous Sediment in the Lemon-coloured Urine, that generally accompanies the first Sickening by Inoculation before the Symptoms rise considerably, (and sometimes even precedes any Sickening) and which seems to me to challenge the Regard and Attention of Physicians. I had observed p. 99. that Inoculation superadded, as it were, a *Stadium* of, or about, a Week, previous to the manifest Invasion of the Small Pocks. May not then this, frequently, very copious concocted Sediment at this Time be contemplated as the *Crisis* of this *Stadium*; and as materially conducing to the Mildness of the following Symptoms, and to the complete happy *Crisis* of the Disease? But the certain Resolution of these Queries depending on still further Observations, we suggest and submit them to the Candour of our sagacious medical Readers.

* Mr. Maitland observes that Master Mountague, inoculated at Constantinople, had bright red Spots in his Face after the third Day, that they disappeared, and returned again at Times, 'till he sickened. P. 7. He says the like Spots and Flushings happened to his Sister, Miss Wortley, inoculated here. P. 10. See his Account published 1722.

again the second Sister, the eldest of the inoculated Ladies, had the very slightest Eruption.

It seems reasonable however to conclude, in general, that our Fluids are seldom better adapted for this Infection than in our healthy Infancy and Childhood, before we meddle with solid alcalescent Food. Nor has the bland fostering Warmth of Infants an equal Tendency to exalt and volatilize the animal Humours, with the Heat that predominates at Puberty, and the Approaches to it; as the *Foetor* of their Urine and *Faeces* is manifestly less, from a smaller Proportion of sulphureous and saline Particles. It is highly probable too, that during this Term, there is a smaller Proportion of red Globules in the tender Mass; such a Circumstance being likely to correspond better with the Tone of their Arteries, and the Circulation through their minutest Canals. Now in these Globules we have supposed the humoral *Pabulum* especially to reside; and their smaller Proportion in Respect of the serous ones, if we credit the experienced FULLER, disposes to a less inflammatory and hectic State. In the healthiest Infants, through the very early Months, it is wholly unusual to see ruddy Cheeks; which must be either owing to such a greater Density of the Teguments there, as prevents their Appearance; or to the serous Globules as yet chiefly circulating thro' those fine capillary, superficial Canals, which are afterwards sufficiently dilated to admit the larger red ones: the present Confinement of which to the
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larger Vessels, chiefly, must infer their smaller Proportion. HOMBERG besides observes the Blood of young Animals to yield more Acid than that of Adults ; and in Fact we find the Fluid separated from it in the Stomach of a Calf manifestly acid, which is often the Case with Infants also ; to which they owe those Gripes and curdly Stools, that are pretty commonly relieved by the alcalious Absorbents. Now such a *Crisis* of the Fluids seems strongly contrasted to the intensely bilious one, which we conceive as very badly disposed for the Small Pocks : and indeed the predominant Acid may be considered as having a similar Analogy with the cooling Element, to that which the alcalescent inflammable *Diathefis* has with Fire ; and so may be supposed to restrain that high Effervescence and Fusion, which precede and accompany the severest Degrees of this Distemper.

A further, and perhaps, not the least Advantage of Childhood for this Malady is, their having no Idea, and of Consequence, no Dread of it ; which there is often much Reason to apprehend has conduced to its Fatality in Adults. It may be observed too, that the Inaction of Children, before they run about, prevents any Exaltation of the inflammable Principles of the Blood, through excessive Motion or Exercise. And if we add to this their great Proportion of natural Sleep, in Respect to that of Adults, which may not be unserviceable in a Disease, wherein Sleep procured by Art has been found so beneficial, perhaps

perhaps we have enumerated all the Advantages, and no very inconsiderable ones, which Infancy has with Regard to the Small Pocks.

Yet as it certainly has its Disadvantages too, we must admit first, that the *vis vitæ*, or natural Strength, is very languid in such tender Subjects; and that supposing their little Mass pregnant with a considerable Proportion of the various Fuel, which will be less easy to discover in meer Infancy, it may require a greater Exertion from within, in order to a compleat Expulsion of the variolated Blood, than can always be expected from the feebler Contraction of their little Hearts, and the probably smaller Elasticity of their Arteries. This is countenanced by Experience, as a great Proportion of those Few who die of the natural Contagion, before its first *Crisis*, Eruption, are Infants, or very young Children, a small Proportion indeed of Adults miscarrying for Want of it. And this was the very Case of the Child of ten Months old, who failed under Inoculation, and whom I have already mentioned, as the sole Instance of my ill Success in it, (to the first Impression of this Work) my single Suffrage having been for deferring the Operation. In Reality we find the Pulse of Infants very generally quick and small, which commonly occurs in the last Scenes of most Diseases in all Ages; as tho' the early Efforts to live, and Approaches to dying, consisted in a similar Weakness of the vital Motion; and Nature endeavoured, in both, to compensate for the Infirmary of the *Systole*, by
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the Frequency of it. The Cause of this may be, that the Ventricles of their Hearts not being contracted with sufficient Force, for a compleat Expulsion of all the refluent Blood, they have not, so discernibly, that short, yet sensible, Pause between the *Systole* and *Diastole*, which occurs in a more vigorous Stage of Life ; and which is termed by BARTHOLINE, and others after him, the *Perisistole*. Besides which, a greater Facility and Perfection of the vital Motions may be contracted from their very Continuance and Re-iteration ; the Strength and State of the Organs improving at the same Time from their Growth and Exercise, which may be termed, perhaps, the Experience of the Constitution, or vital Oeconomy.

Furthermore, as we have a manifest vegetative Principle inherent in our Fabric, I have sometimes indulged a Supposition ; that besides its general Operation to our Stature and Enlargement, by an Extension of the original Parts, throughout the Term of our Growth ; there may be a more peculiar Exertion of it a little after the Birth, in a further Number of fleshy, vascular and nervous Fibres ; which might be involved in the foetal ones (as the early Rudiments of some Plants visibly are in their Seeds) but which were not extruded or explained in the *Uterus*. It sometimes seems to me, as if Children did not positively see for some small Term after the Birth, tho' their Eyes are not closed ; but whether the *Velum Pupillae* be always effectually removed before

fore that great *Crisis* of Existence, I submit to more compleat and exquisite Anatomists. It is some Time too before they appear to advert to Sound, or discover any Affections from Odours; Nature having judged it sufficient to set the Organs of vital Motion immediately at work; and it being necessary, perhaps, from the very delicate Texture of their Brain, that their Sensations should be extremely obtuse at first: as we find Convulsions, and those often without any other sensible Disorder, particularly fatal in this earliest Stage of Life. As the Dissection of the more manifest Nerves is sufficiently difficult; and I have been assured by that excellent Anatomist, Dr. HUNTER, there is no Possibility of pursuing them near to their utmost Exility, the supposed Multiplication or Exertion of other nervous Filaments after the Birth (the Growth or Extension of the foetal ones being indisputable) is equally incapable of an affirmative or negative Demonstration. Yet as their extraordinary Portion of Sleep, supposing them healthy, is a reasonable Suggestion of their small and slow nervous Secretion, which seems principally expended on the immediately vital Motions (all Sensations but that of Pain, all the Passions and Faculties, being as yet out of the Question) it is probable that Nature, still plastic, may be slowly extending, tuning, and possibly even further furnishing these Organs of Sense, and Instruments of Motion, after the Birth, whose Functions were unnecessary, at least, before it. And her having no foreign or external

Avocations may favour her in such a secret Operation ; whose gradual Effects we see, though its certain Mode be inexplicable.

But be these Suppositions true or false, will it be eligible, on their moderate Probability, to congratulate the new and tender Visiter with the Present of a very early Disease ; and to subject his vital Oeconomy to struggle, while it may be, in a Manner, but practising to move ? Besides it seems reasonable to infer, that Infants perspire less than Children who use Exercise, which promotes it : for while the Circulation continues languid, there cannot be such an Exertion to the Surface ; from the Defect of which the sore Heads and running Ears they are subject to on the Lap may considerably result : since we often find them vanish soon after they arrive at the free Use of their Legs ; 'till when they seem to be Issues of Nature's own forming, to compensate for the Defect of Perspiration ; as we find the artificial Issues generally relieve, and sometimes cure, such Effluxions in gross humoral Children.

One final Purpose of Nature in this smaller Perspiration, at the Dawn of Life, seems to be the speedier Growth and Vigour of the tender Animal ; which has been thought to occur in a greater Proportion for several Months after the Birth, than it ever does within an equal Term afterwards. It is true that our Trials of the Proportion of Perspiration, with those of the other Discharges, have been hitherto confined to adult Bodies ; so that its Comparison with them

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in Infants and Children has not yet appeared. But it should seem sufficient, in full grown Bodies, for the new Chyle to repair the Abrasions, and replace the *Dispendium*, of the Machine; while a moderate *Surplus* is necessary to be retained in young growing ones, for a farther Addition to them. Now tho' in healthy young Children, who are generally plump and succulent, Nature is not supposed to retain what is noxious, for this Purpose; yet it may be presumed the Fluids are somewhat the less pure for this partial cuticular Discharge: on which may probably depend the peculiar Propensity of young Children to the Chicken and Swine Pocks, with other cuticular Disorders from a slight Efferescence, to which Adults are rarely obnoxious. It may be doubted also, whether the red and white Gum, as Nurses call their Eruptions in the Month, are not owing to that total Want of Perspiration, which is probably a Circumstance of the Fœtus; and which Eruptions, while they tend to purify the but very lately eventilated Blood, are, perhaps, particularly instrumental in commencing the future necessary Perspiration. We must suppose then these most early Eruptions, common to all Infants, over, before any Person of common Sense would dream of inoculating them.

And even in the Months that succeed from hence to the ordinary Commencement of Dentition, or Toothing, which may be supposed, on a *Medium*, to happen about the sixth, I have often

imagined the Acidity, common to Children in the first Passages, to amount to Acrimony in some Habits; whence not only severe Gripes and curdly Stools, but even very green and mucous ones; in which Cases, as I should apprehend, that Infection would have but little Tendency to mend the unbalmy State of the Blood; I should be fearful too, that such an irritable Condition of the Bowels might prove a very exasperating Circumstance, and expose the tender Patient to a * dangerous Dysentery, as the various Fusion of the Humours advanced. Nevertheless if any, overlooking the Chance of such Effects, were determined to inoculate within this Term, the Stools should be considered, and such morbid Appearances of them should be effaced before the Operation.

I have likewise repeatedly observed, that in plump, full Infants, the Teguments are harsher, as well as thicker, than one at first would expect. The present Depth of those Blood Vessels, which, in some, prove apparently turgid as they grow up, is one Argument, at least, of this; and suggests no bad Hint of that Abhorrence, which Nature has to Bleeding, during this Stage of Life. There is a much greater Difficulty in raising and detaching

* An Infant of six Months, inoculated some Years since, had Stools, in the *Apparatus*, considerably streaked with Blood; but which changed very soon after Eruption. They gave me but little Alarm in this Stage, as the Fever and other Symptoms were moderate; and as I judged them but equivalent to a salutary Hæmorrhage by the Nose, which would probably have happened to the same Patient in a more forward Term of Life. She had between twenty and thirty Pustules in all.

detaching the Skin by the Fingers from the adjacent Muscles, than in those who are advanced enough to play about alertly; as if a further Extension of the Body was necessary to that Freedom and Extenuation of its Teguments, which is one happy Circumstance for the Reception of the Small Pocks, as it disposes to an easy Eruption of it: And this greater Resistance at the Surface is likely to be of the worse Consequence, where the Contractions of the Heart are more feeble; our most hopeful Prospect, in such a Situation, being the small Quantity of the Matter expected to be expelled. For, with Regard to the Exility or Smallness of the Vessels, the Straitness of the excretory Ducts, and the State of the Integuments, there appears to be too much Crudeness and Immaturity in the early infantile System, to render it very pliable to this eruptive Disease; whence the previous Extrication is often attended with more Difficulty in this, than what usually attends an equal variolous Assimilation in a subsequent Stage.

And here I shall endeavour to inforce by a few Facts, within my own Knowledge, what I had advanced in the first Edition, against the Inoculation of Children in the very early Months, or even Weeks, as some have then attempted it; since I find it is become rather a more popular Practice than it formerly was. I knew a Child of six Weeks old inoculated by her Father, an Apothecary, and another of six Months by the same Gentleman, neither of which had a single
Eruption,

Eruption, nor any subsequent Complaint. Indeed as the Quantity of the Blood, more particularly of the red Blood, is very small at this Term, and the Solids so inconsiderable in Respect of their future Weight and Extension; it is not unlikely that the inherent Fuel of the Small Pocks, may be proportionably so weak, and so little extended, as to be less susceptible and retentive of the infused Matter, and less assimilable by it. This *Seminium*, or Fuel, at this Term, may have some Analogy to Seeds in their crude or lactescent State; when, tho' containing the Matter and some Principles essential to Vegetation, they are as yet too watery and immature, to be quickened and become productive by the most favourable Soil and Season. From which Analogy I should imagine the ineffectual Inoculation of such Bodies, but an uncertain Security from a future Infection of the Disease. But suppose that in a warmer Habit, they might prove sufficiently impregnated to produce it, at this very early Term of Life, what I have affirmed concerning the general Difficulty of Extrication in such Bodies is certainly true. The little Child of six Months, whom I have mentioned above,* as having bloody Stools on Sicken- ing, had a much higher Fever, with severer Symptoms, and a later Eruption than her Sister, of between three and four Years, who had about half as many Pustules more. I have lately seen an Infant of five Months inoculated by a Surgeon; her Eruption was far from being numerous, tho' it might

* P. 228.

might amount to some Dozens, out of all which not a single Dose of Matter could be procured: notwithstanding which, the Fever was so violent before Eruption, that her Parents were under the greatest Apprehensions for her Safety. Now if all Persons who have been Witnesses to the like Facts; were to attest them as publicly, I am clear they would not be very few. But I am unfeignedly surprized, that a little common Reflection [for medical Reflection is more confined] on the Bills of Mortality is not effectual to extinguish this dangerous, precipitate, and often inefficacious Practice. I observe, in turning over half a Dozen of these Bills at a Venture, that the Deaths under two Years of Age exceeds, in five of them, all the Deaths from above two Years to fifty Years of Age, inclusive; and in a sixth Bill, all the Deaths to sixty Years of Age inclusive. How many Infants are suddenly snatched off by a Convulsion, or scarcely interrupted Succession of them, without any other evident Disease! as if in the spinning out the extending Nerves from the exquisite and indiscoverable Texture of the Brain (which may be considered as a kind of *Tomentum* or Tow here) some most important and vital Filaments snapped, or otherwise proved so impermeable, as, after a few ineffectual Struggles, to put a final Stop to the vital Motions. But to whatever untraceable Cause such an early and most frequent Mortality may be ascribed, has all the Wisdom of Medicine been sufficient to shorten the melancholy List? Has
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the Operator any competent Reason for concluding, that such a Circumstance may not happen, independent of the Small Pocks he introduces, during these tenderest Months or Weeks, which seem indeed a longer *Crisis*, a kind of struggling towards firmer Life? Has the greatest Admirer of Inoculation a Persuasion of its Power to prevent, or, for its own Credit, to prorogue such a fatal Contingence? He may be very certain however, if his tender Patient expires from such a supervening Cause soon after Inoculation; in the Small Pocks; or within a few Weeks after it, that the Fatality will be ascribed to the Operation, tho' perhaps with less Justice, than to the unthinking and imprudent Operator. And this happening, tho' but a few Times, will be apt to extend such a Discredit to the most judicious Use of Inoculation, that many proper Subjects, from dreading and declining it, may be destroyed by the natural Disease. It is not a sufficient Justification to say here, tho' I believe it may be truly said, that many inoculated within the Age of six Months, and a few within six Weeks, have succeeded. A Disease that is to be given to a Person in Health, ought to be given with its least possible Disadvantages (for in raging Infections and particular Situations a few may be unavoidable) and with all its possible Advantages. This is not the Case, if it is applyed at such a brittle Time of Life, when such a Majority sink from the Imperfection of their vital Motions; perhaps thro' an insufficient nervous Secretion to continue them. We have
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shewn, that some Infants have missed of Infection, and the Sequel of this Section will shew, || that several have miscarried under it. I was sufficiently consistent with my former Precautions on this Head, to declare my own Judgment against inoculating the Child of six Months already mentioned; who succeeded nevertheless, as many others may. But the Father being a Surgeon and Apothecary took it upon himself, and I complimented him very readily with my Advice and Attendance. Doubtless the Operators, who are so forward to inoculate such meer Infants, heartily intend and hope to succeed: and it is no Wonder if their Fears are often as limited as their Faculties. Some are not to be instructed even from repeated Miscarriages. In Truth, upon the Whole, this precipitate Practice has also a sordid and illiberal Aspect; it looks as if they had resolved, that No-body should die without incurring the Small Pocks; as if a Child should not be born alive without a Capitation Tax to the Inoculators. Upon this Scheme, indeed, it can never be done too early, and Dr. WESSEL's *Embryos** are excepted, only from their Situation.

When the Infant advances a few Months, suppose to five or six, the Terms of Dentition or Toething begins, tho' often varying three or

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four

* This Gentleman having advertised an empirical *Nostrum* to strengthen the Child in the Womb, and called it *Tinctura Embryonum*, he was rallied by some Wags, who pretended to imagine his Tincture was made from *Embryos*, as the obsolete officinal Oils of Whelps, Swallows, and Scorpions were made by boiling those Animals in Oil.

|| See P. 236.

four in different Bodies. As this is a very painful and morbid Period with some, and not seldom attended with febrile and convulsive Disorders, I should by no means be for superadding the Operation of the variolous Cause to them, or to the probable Intervention of them. Dr. FULLER thinks it dangerous in Children at this Term, and I have already mentioned a Patient of my own miscarrying under Inoculation at the Age of ten Months. Yet I have no Doubt, as I said, but many inoculated in the tender Months have done, and may do, very well : I remember a lovely Babe of six Months that got thro' all the little Peril of the artificial Disease ; and tho' her left Eye * was weak and watery from the Birth, there has not been the slightest Eruption near it ; and what little Alteration happened to it was rather for the better. It is indeed a reasonable Presumption the same Individuals can never undergo a smaller Eruption at any subsequent Term : tho' I must confess, upon the whole, for the Reasons already specified, I imagine it is not fully availing ourselves of every favourable Circumstance. Should they happen to have such sore Mouths as sometimes occur in the Disease, which may prevent their sucking or drinking, their Situation would be dangerous ; a material Circumstance, which I find Mr. RANBY has also adverted to, who disapproves Inoculation, under four Years of

* A gentle small Blister was applied behind the left Ear, which rose and run well : this Effluxion was directed to be encouraged as it dried, by frequent Frictions ; and the Incision was made in her right Arm, instead of the left.

of Age. It appears from Dr. SCHEUCHZER's Tables, that out of twenty-four inoculated under one Year old, from the Year 1721 to 1728, inclusive, two died. Mr. GOLDWYER of *Salisbury* informed me, that one of the four dying there after Inoculation was a Child about twelve Months old, who had but seven Pustules, and was twice purged; but had a Fever very soon after from Dentition, and died on cutting a second Tooth. BOYLSTON inoculated but six, from nine Months to two Years old, who all recovered; but such a Number is too small to form an Estimate from, as the natural Disease does not generally kill more than one in six or seven.

The Duration of Infancy should seem, from the Etymology of the Word, to determine with the fair Commencement of articulate Speech. As this is considerably various in the little Individuals, to give it a reasonable Extent, we shall suppose them about two Years of Age; when we may as generally allow them Strength and Agility for Self-motion. When their Terrors from the first Effays of this new Faculty are just subdued, it is pleasant to contemplate the Exultation of the pretty Innocents in the early Exercise of it: and perhaps no future Vehicle, by Land or Water, will ever give them an equal Delight with the Novelty and Consciousness of this self-moving Power. Their *vis vitae*, their nervous Secretion, and cuticular Discharge are now increased, to their manifest Vividity and Lightness; and yet there is no considerable Extenuation of their Ad-

vantages for the Disease, if they have been properly dieted and regulated. It must be considered however, that the painful and febrile cutting of their Eye Teeth now occurs to many; in Respect to which critical Season, in the Children of several Families, the earlier Months have been preferred to these by some Practitioners. But to incur the least Danger (which is certainly our Duty on this Occasion) when we reflect once more on the great Majority of Deaths under two Years, we shall probably judge it prudent, at least, to get the young variolous Volunteer (who must, at this Age, become such by his natural Proxies) considerably beyond the slippery Borders of it. Nevertheless, where the natural Disease should be very epidemical and unusually fatal to Children then; where the Subjects were not ailing and infirm for that Age; and it was very inconvenient to move them from the Sphere of Infection, I should think the Operation, even at this Term, eligible; but from such Circumstances only. From thirty-four inoculated here, within the Term of eight Years, from the Age of one to two, four died, which is nearly one in eight: one of the deceased at *Salisbury* some Years since was also under two Years, and died of a confluent Disease.

From two upwards to five the Number of Funerals is sensibly contracted; tho' still remarkably more than in the succeeding Stage. And indeed I should consider the Age of five and its *Environs*, which I may call from four to seven inclusive,

as a very eligible Term for Inoculation: tho' undoubtedly one Child may be as proper a Subject for it at three, as another at four, or upwards; such different Fitnesses being of Course submitted to the particular Gentlemen consulted on such Occasions. Their natural Dispositions now become more manifest: their Faculties begin to dawn through their Looks: their collecting and compounding Ideas very entertainingly evidence the firmer, and, if I may be pardoned the Expression, the more inhabitable Structure of the Brain, and the compleater Functions of its sensitive Emissaries. A proportionable Invigoration of the vital ones is a very obvious Inference. Their Teguments are generally as well disposed for the Distemper now as they are ever like to be: As yet we may suppose few of them affected with much Dread of it; and when the Operation is resolved on, a Majority of them may be easily deceived into it, without infusing the least Apprehension of any subsequent Disorder. And now as soon as the ensuing Disease is happily determined, which is next to universally the Case, what Hours, what Years of Anxiety are the Offspring delivered from, by this prudent, this truly parental and early Pre-occupation of the Small Pocks, at that Season of Life, when the mild and ductile Strength of the Subject concur, with many other Circumstances, to constitute the most benign Temperature for the Disease; a Situation not always to be equalled afterwards! About this Time too Children generally become
more

more tractable ; and Miss begins to form a sufficient Estimate of Beauty, to abstain from scratching or picking, if disposed to it : besides if a more considerable Eruption, than what usually happens to the inoculated about this Age, should occur, there is still a sufficient Term to out-grow them before Maturity. Of sixty-five inoculated here, within the Term already mentioned, from the Age of two to three, but one died. One of the four deceased at *Salisbury* was about three Years old, and had a confluent and chrystalline Pock. BOYLSTON reckons fourteen inoculated from two to five Years old, who all recovered, by his Tables.

From seven to Puberty, or its near Approaches, we shall consider as the next favourable Period for the Operation. The remarkable Decrease of Funerals in this Stage evinces a considerable Invigoration of the Habit, and some Approaches towards the Knitting and Establishment of the Constitution. But as the *Vis vitæ* (since we continually suppose a healthy Subject) is abundantly sufficient now, their Teguments become a little more resisting, not from Crudity, but Firmness. If they have been indulged in tasting strong Liquors, and a plentiful Course of animal Food, the variolous Fuel may have been augmented also ; (tho' the different Energy of the natural Portion is a most important Circumstance) and, what we have observed may be of some bad Consequence, many within this Term have a Dread of the Distemper. Their frequent Use
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of good ripe Fruit, if sound and not excessive, can be of little Disservice to them ; and we may pretty justly conclude, on the whole, that they get as safely through Inoculation as those within the former Term. In a hundred of each inoculated, it is very probable the Number of Eruptions of those in the later *Stadium* would exceed ; tho' it really happens to a Majority of these, to have no more than they undergo very easily. So that where they have not had the Disease in any of the preceding Terms, and are likely to live in the Way of it, it seems entirely prudent to embrace it in this. It is pretty usual for those inoculated within this Period, to have Hæmorrhages from the Nose in the Attack, which are generally serviceable. Out of 257 inoculated here, within the aforesaid Term, from the Age of five to ten, three died, 249 only taking a compleat Small Pocks, which makes the Proportion dying by Inoculation, within these Ages, one in eighty-three. BOYLSTON has but sixteen inoculated, from five to ten, who all did well. Perhaps, on the whole, no other Stage of Life is more eligible than such an Interval, for the Operation.

At the Evolutions, and in the early Progress, of Puberty, there is a stupendous Alteration in the animal Frame. The vegetative Principle is now extraordinarily exerted in the Explication of particular Organizations. Even new Parts emerge, new Secretions spring, and a new Passion, or a very different Direction of a former one, attended with a various Modification of those

those already experienced, ensues. The Voice contracts another Tone; the whole Form, the Eyes and Aspect, another Air; they imbibe, and they impress, Affections entirely novel; and a conscious *Je ne sçai quoi*, which Looks can only express, characterizes this Spring, this first Germination of the self-renewing Faculty. The natural Humidity is apparently now in its full Proportion; and the cutaneous Discharge in its full Vigour, which, in some Habits, becomes less agreeable, tho' inoffensive in most, and in a few, as it is recorded of ALEXANDER, even redolent. Very probably Mr. THOMPSON thought of this last Circumstance, in his admirable Description of Spring, when, speaking of a Virgin in this Stage, he says, "She breaths of Youth." Not incorrespondent to such a State is that of the *Magnolia* (as the Curious term the Tulip-leaved Laurel) and some other flowering Trees, of several Years Growth before they bloom; previous to which a new Series of Vessels are either then formed, or first explained, and infused with a peculiar Fluid from the Plant, diffusive of its Odours, and preparatory to the Continuance of its Kind.

The most universal Effects in the Creation contract a Familiarity, from their Frequency, that renders them, how charming soever, too cheap to the superficial Observer: But the philosophical and contemplative, who investigate them as far as human Study, and their Portion of human Penetration, enable them; while they discover

cover enough of the interior Oeconomy of Nature in the Renovation of all Bodies, to engage their most rational Admiration; at the same Time experience something so latent, so coy and inaccessible, as I may term it, in the efficacious Process, that it immediately refers them to the super-intendant Volition of a supreme and perfect Intelligence, with a *Deus! en Deus!* and obliges them to consider the whole as miraculous, in spite of its continual Occurrence, its unfailing Regularity and Tenour. But to return from still Life — We may well infer, that about this Period, in the human Constitution, the high and inflammable Principles of our Mass become more copious and potent; the natural *Fomes* of the Small Pocks is further diffused through the augmented and expanded Mass; the adventitious may be considerably increased by high and superfluous Aliment; and both may be exalted by violent Exercise. During this Term, under which, to make it the more comprehensive, we shall include the Subjects of the Disease from fifteen to twenty-five, accidental Infection has undoubtedly a considerable Number of Victims; the natural Heat and Vigour too frequently co-operating with the inflammatory Symptoms to their own Extinction. Yet may it be necessary to add here, that as this Stage is generally preferable to any subsequent, it seems better to inoculate now than to postpone it; tho' in general we are to expect a more copious Eruption, and often a higher Degree of variolous Symptoms,

than in the former Periods. SCHEUCHZER's Tables make 140 inoculated here from ten to fifteen, of whom 131 only took compleatly, and but one died. From fifteen to twenty Years of Age, 104 were inoculated, ninety-five compleatly taking, three imperfectly, and two dying, that is one in forty-eight nearly. BOYLSTON has 29 inoculated, from ten to fifteen, who all took and recovered; and fifty-one, from fifteen to twenty, who all took, and of whom one died.

From twenty-five Years upwards, it is highly probable, the Constitution never improves for the Reception of the Small Pocks; unless from the Accident of some extraordinary Relaxation or Discharge, that damps or lessens, for a Time, its natural Fuel in the Blood, without leaving any morbid Impression on the *Viscera*. The Teguments, and the Solids in general, approach to a more tense and rigid State; the red Globules probably become more fibrous and compact; whence a greater Orgasm, from a fiercer Struggling with the variolous Infection; tho' little conducive to the Security of the Patient, whose physical Situation, in this Case, may be compared to the political one of over-wealthy and potent States; whence Luxury, Corruption, Faction and those civil Confusions increase, which sometimes terminate in their Dissolution, as the Roman Lyric says of antient *Rome*,

Suis ipsa Roma viribus ruit.

Such

Such Constitutions seem directly opposite to those which SYDENHAM, I imagine, has designed under his *ευμεταβολοι*, his easily changeable, whose mild Fluids submit to a small Assimilation; and whose free Ducts and yielding Teguments afford it a ready Eruption without much perceivable Sickness. And tho' such opposite Constitutions appear in the same, as well as at different Stages of Life; yet as we are here abstractedly enquiring into the various, and general Aptitude of the different Stages for Inoculation, we may affirm, the unyielding and inflammable Subjects will most frequently occur from about thirty or thirty-five, when the Body has generally attained its most compleat Succulence and Vigour, to about fifty in healthy Men; in the more robust, to fifty-four or fifty-five, when the *cruda viridisque Seneectus*, the lusty Spring of approaching Age, has been reckoned to begin; and which may extend in strong *Stamina* even to seventy, at which Time decrepit Age commences with a Majority of those, who arrive at these Years. Undoubtedly during what may be called the robust and settled Term of Life, the Space between Youth and Age, which may be settled pretty generally in this Climate from thirty to fifty (when the Subjects will correspond pretty well with the *καθεσκηκοτες* of HIPPOCRATES) the natural Disease is considerably depredatory and fatal; and we may reasonably expect the *Ratio* of Inoculation within the same Term to vary in some Proportion. Happy and easy are those who have

fortunately past thro' a much earlier Infection! We are uncertain from Dr. SCHEUCHZER's Tables, how far beyond the Age of twenty they ventured to inoculate within the first eight Years of the Practice. He puts down however 110 inoculated, who were upwards of twenty Years, of whom ninety-one took compleatly, six imperfectly, thirteen not at all, and two died, or one in forty-five of those who fairly took. BOYLSTON has sixty-inoculated, from 20 to 30, of whom sixty took, two missed, and one died. We might, indeed, once for all, have referred our Readers back to the Tables of those Writers, which we have reprinted *figuratim*, to calculate for themselves; but the Proportion of Deaths and Recoveries from Inoculation constituting a very essential Part of this Work, such a Recital here may prove the most venial Redundance in it.

Were it necessary to advance to the later Stages of Life, we have TIMONI's Affirmation, 'that it has been performed on Persons of all Ages, without any one being found to die of it.' PYLARRINI, with more Reserve and Truth, says, 'seldom or never has any bad Consequence happened; tho' it has been performed on all Ages and Temperaments.' The former has certainly not been the Case with us in *Europe*, nor in *America*; and indeed it would be unaccountable, if it were: For tho' we may admit People in general on the evident Invasion of Age, and much more in the Progress and Advancement of it (supposing them
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temperate and regular) to be less inflammable Subjects than at the Vigour of Life, and to be rather phlegmatic than bilious: yet we must be sensible the Circulation is now feebler; the Rigidity of the Vessels is increased, the Arteries having become bony, in some old Persons; the Teguments are dryer; some of the smallest Capillaries, which in meer Infancy might not be sufficiently explained or dilated for the Circulation, may at this Age as probably be cancelled or closed up; and the Perspiration considerably decreased. Now as the former Circumstances will render variolous Extrication and Eruption very difficult; so the last will occasion a foul and recrementitious Blood, which might otherwise perplex and confuse the Disease, it had no direct Tendency, as a *Pabulum*, to exasperate. Should the Symptoms run high, such Patients will be in the State of Infants or young Children, with Regard to their Strength, without the advantageous Ignorance of their Danger. They will not be so liable, as the strongest Patients, to a mortal Struggling with the Operation of the imbibed Venom; tho' probably more so, to as fatal a Sinking under it. But supposing Eruption got tolerably over, we should be less surprized at a tardy and imperfect Suppuration, at a warty or husky Pock, or at that Disposition to a Gangrene, to which old Age is, on other Accounts, so obnoxious. And besides these Objections to Inoculation at these Times of Life, we may observe, (which DIERBROECK did of the Plague itself) that old People

People are really less susceptible of the natural Infection (probably from a Diminution or Dampness of the more high and volatile Principles of the Mass) and that the more advanced have ofteneft missed it by Inoculation, which was early observed by Dr. JURIN. We may morally reflect too, that he must either have had a very uncommonly uninterrupted Series of earthly Happiness, who could embrace such an Infection after forty-five or upwards, for a contingent Prolongation of his Life, through an Immunity from one Distemper : or that he must be affected with an excessive Dread at his inevitable Subjection to Death, who could be so deeply solicitous about a little Remainder of the Day, when Evening admonished him of the necessary Approach of Night. Neither might such a Patient, after a severe Small Pocks (which he has rather Reason to expect, even from Inoculation) be able to emerge so compleatly thro' all its impairing and morbid Consequences, as one in any of the former Stages of Life. In *Great Britain* or *Ireland* I have not heard they inoculated Persons advanced in Life, and of Course not the aged. Mr. RANBY, to the best of my Recollection, informed me, he inoculated none above two or three and thirty. About six Years ago, I inoculated a * Gentleman of 34, and

* It seems pretty certain this worthy Pair had been poisoned in *Carolina*; the Gentleman, with many other Symptoms, having been rendered bald by it : the Lady, afflicted with a symptomatic Cholic and Jaundice, having lost an extraordinary fine Complexion. They both recovered on taking the usual Antidote of broad
leaved

and his Wife of 30, who went through a benign Distemper with great Ease and Chearfulness. I have since inoculated five of their Children and Nephews (and GOD be praised for the whole !) with equal Success. In *New England* it has been done from fifty to sixty-seven : Women pregnant, and soon after Delivery, Grandfathers and Grandmothers have been inoculated with their Posterity : and if there had been any Beldames who desired it, they might probably have found an Operator. Of forty-two, who took by Inoculation at *Boston*, out of forty-four, from 30 to 40, one died. Of seven, who took out of eight inoculated, from forty to fifty, none. It seems less surprizing that two died out of seven inoculated there from fifty to sixty, than that only one died out of as many inoculated, from sixty to sixty-seven. Such Temerity must have justly subjected its Authors to that Censure of HORACE,

—— *dum vitant vitia, in contraria currunt.*

Thus much, and perhaps but too prolixly, on the Advantages and Disadvantages of the different Seasons of Life, for the Small Pocks. But as it was our initial Purpose to leave nothing very material on this interesting Subject for any future Compiler, 'till a much larger Experience of the Practice shall render it expedient, we are the less concerned for any such Redundance, as may
have

leaved Plantaine and white Hoarhound, after using many other Medicines without Relief, from an Aversion to distrust Slaves they had treated with continual Humanity and Kindness. His Baldness was entirely removed; but her Complexion never recovered its former Lustre and Delicacy.

have a Chance of being once useful. We proceed then to consider the different Seasons of the Year in the same Relation.

It can scarcely be necessary to premise, that the Seasons have an obvious Relation to Climate; or that the Summers of *Constantinople*, which lies in about 41 N. Latitude, or those of *Charles Town*, which lies in near 33, must not only be greatly hotter, but commence earlier and conclude later than a *British* Summer. TIMONI says, 'this Operation is performed either in the Beginning of Winter, or in the Spring.' Yet PYLARINI tells us, 'the *Greek* Operatrix never performed it but in Winter, tho' he takes the Spring also to be proper.' The middle of September is seldom unseasonable here, but the inoculating Hospital, I think, rarely operates before October. Some have thought the very cold and rigid Months might be unfavourable for it; yet we find Dr. NETTLETON, whose Patients very generally succeeded, inoculated in December, January, &c. Dr. FULLER's were in April. BOYLSTON begun to inoculate in *New England* the latter End of June 1721, when it must be pretty hot in the Latitude of forty-two, and continued it to the following May, before which he must have experienced it in the Severity of their rigid Winters at *Boston*. The great Numbers inoculated in *South Carolina* in 1738 were in their raging Summer Months; but this was a Matter of utter Necessity. The 300 recorded by Dr. MEAD to have been inoculated in *St. Christopher's*, in the
Latitude

Latitude of about 17, must consequently have been infected in hot Weather. These last are all affirmed to have done well: and indeed from this general cursory View we may well infer, that the great Advantage of Inoculation in all Times and Places looks, as if Providence intended it for an universal Relief and Obviation of the natural Malady, whenever, and wherever, it raged. Nevertheless, as the State and Temperature of the Air, that Fluid we incessantly imbibe, will very probably have some Effect on these Occasions: and as we are supposed to select every availing Circumstance for communicating the Small Pocks, let us reflect a little, what Influence different Seasons may reasonably be supposed to have on it.

Were we to imagine a considerable Resemblance between the Seasons, the Climate, of antient *Greece* and our own, (which we cannot strictly do) and listen to what the venerable *Coan* briefly says of the former, we must conclude the Spring a very proper Season for infusing the Disease, as he terms it the (a) most healthy one, and particularly for Children and young People. (b) And indeed we may be sensible that our Springs, upon the whole, differ but little, in their general Healthfulness, from the *Grecian*. The cutaneous Discharge, which the Cold had restrained, is now augmenting; the Circulation through the superficial small Vessels is more free; the Blood

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(a) Ἡ ἐν ὑγιεινότητι καὶ ἡλικίᾳ θανάσιμος. L. 3. Aph. 9.

(b) Τὰ μὲν ἡ ἐν καὶ ἀπὸ τῶν θεῶν, οἱ παῖδες, καὶ οἱ τεταρταῖοι ἐχοντες τῇσιν ἡλικίᾳσιν ἀριστὰ διαγινώσκει, καὶ ὑγιαίνει μάλιστα. L. 3. Aph. 18.

is probably of a kindly Fluidity and Temperament for this Disease, and the Teguments in no bad Disposition ; especially if we suppose a settled Spring ; and rather blandly tepid than raw or nipping ; tho' in some Habits and Circumstances the latter Temperature may not interdict it. The very Aspect of the Season, and the benign light Exhalations from the teeming Earth, may conduce to Health, and increase the nervous Influence and Secretion ; as I have sometimes imagined all very delightful Prospects, all entertaining Employment, and innocent rational Pleasures do. The Poets and Naturalists of all Climates, that enjoy a very distinct Spring, have not been wanting in their Eulogies of the Salubrity and Pleasure of this Morning of the Year, as we may term it. There is no præternatural Fervour as yet imbibed from the Summer's Heat ; the Bile is not greatly augmented, nor turgescient ; there is little Tendency to Putrefaction ; nor are the Solids as dense and resisting as in severe Winters. Undoubtedly, on the whole, the Spring is far from being improper for Inoculation. The Hospital appointed solely for it ordinarily receives Subjects the latter End of March, and early in April. Besides, should the Patients be visited with a greater Eruption or higher Symptoms than usually attend it, the mild Advances of our pleasant Summer succeed very opportunely to air, to recreate and recruit them.

Yet as nothing below is perfect and unmixed, we must observe, that this Season, like the rest, has

has its Propensity to the Production of particular Disorders. In enumerating those peculiar to the Spring, HIPPOCRATES (a) specifies very many of the cutaneous Disorders of his Country-men, which are more than we have meer *English* Names for, a sufficient Proof of their not being so familiar to this Climate; whose Spring must be more temperate than theirs, which probably rises to the Heat of our ordinary Summers. It must be acknowledged however, that such Eruptions as happen here without a Fever, occur more frequently in the Spring than at other Seasons. Now whether this is solely owing to the Attenuation and Expulsion of any acrid and noxious Particles, which the Winter's Cold had locked up in the Mass; and which may be particularly accumulated in that Season, from our smaller Proportion of vegetable Food then, and a more than usual Quantity of baked and high seasoned Meats: or whether it depends only on a greater Expansion of the Blood, and Relaxation of the Teguments, by the returning Warmth, it proves the Disposition of this Season to eruptive Diseases; that is, to such as depend on a more diffusive Motion from the Centre to the Superficies, with a grosser Excretion there. This will give us but little Apprehension of internal Eruption then, if we may be allowed the Expression, which must be defensible, as the *Viscera* have their exterior Surface too. But the Question here is, Whether, from the present Tendency

(a) L. 3. Aph. 20.

of various Eruptions to the Surface of the Body, a more copious and less simple Eruption may not occur in the Small Pocks, more particularly in the Spring? A late chirurgical Writer on Inoculation is fond of supposing a particular Malignity in the Small Pocks at this Season: and it is not improbable that when all the Fluids in our Hemisphere are rarefied and excited, in order to vegetable Generation, our vital Fluids may become gradually more disposed to a Motion very analogous to Fermentation. But we should not omit to add here, that this gradual Attenuation of the Mass, and its more free Diffusion is in general manifestly benign and salutary, disposing many Animals to a Renovation of their Kind, with that of their Food. Besides the Matter of those little Eruptions that occur at this Season, and chiefly in Children, can have no considerable Malignity, as it occasioned little febrile Commotion or sensible Complaint by its Commixture with the Blood before its actual Eruption; which having a Tendency to depurate the Mass, possibly even a judicious Use might be made of it, previous to Inoculation. Serjeant RANBY has told me, that slight Eruptions on the Face or Body never deterred him from inoculating; nor did he ever experience any Aggravation of the ensuing Disease from them; and upon the whole we think it very clear, that the Advantages of this Season for the Operation sensibly out-weigh its Inconveniences, which abundant Experience has verified: and with which, a malignant Species

cies of the Small Pocks for two or three Springs, if it could be proved, instead of being mentioned, would not equiponderate.

Summer seems unanimously rejected for this Operation by all Writers, and certainly, in the main, with great Justice; since the same Intemperature, most generally observed to contribute to the Violence of the natural Disease, must have an obvious Tendency to raise the Symptoms of that, which is excited by a different Application of the same contagious Cause, and which is so genuine, tho' a very soft Resemblance of it in Miniature. Every medical Person, who has endured the Fervours of Summers equal to the *Grecian*, must have seen, in their burning, their bilious Fevers, their *Choleras*, and their bloody Fluxes, too many mortal Exemplifications of the *καυσαι, ἐμεῖοι, διαρροιαί*, which HIPPOCRATES (1) considers as the most usual Diseases of this Season: his *ἰδρωα* also corresponding very closely to their prickly Heat. HEURNIUS, who lived in *Holland*, asserts, on this Aphorism, (a) “that Summer produces a great Acridity of the Bile.” His Expression is rather stronger, signifying its Procreation of the most acrid. BOERHAAVE also tells us, (2) “that Summer, and whatever increases the Velocity of the Blood, wonderfully encreases and exalts bilious acrid Salts;” and, in talking of the Small Pocks, he terms them, in the

(1) L. 3. Aph. 21.
creatrix est. — In locum modò citatum.

(2) De medicam. Oper.

(a) *Aestas acerrimae bilis pro-*

the Height of a *Dutch* Summer, *periculofiffimae*, most highly dangerous. In Fact the nine who died, out of 900 inoculated in *Carolina*, all died in their very hot Summer Months. In *Britain* we hear very little of its being enterprized at this Term. The celebrated *Sydenham's* Remarks on the natural Disease, and those of many other eminent Writers, all tend to the same Purpose. Neither must we omit so material an Argument against it, as that of this Season's particular Tendency to promote Putrefaction ; to which it may be added, that Summer, in some Constitutions, may require a pretty accurate Preparation, for which it is not the best Time.

But having rendered this just Deference to these Facts, Arguments and Authorities, let us not be partially unattentive, to Facts at least, on the other Hand. Of twenty-two which *BOYLSTON* inoculated at *Boston*, between June twenty-sixth and August thirtieth, one died, who was inoculated the last Day. If it be considered, that but one died out of each hundred inoculated in *Carolina*, all indeed in June, July, and August, when I have observed the natural Distemper, at the very least, carried off every fifth Patient ; and if we admit the raging Heat of those Months there to be, as it very probably was, a most aggravating Circumstance, it must have demonstrated the great comparative Security of Inoculation, even in Summer there. The 300 Negroes inoculated in *St. Christopher's*, under an incessant Summer, cannot well be urged as an Objection

Objection to it then; tho' perhaps as they were all *Africans* or their Descendants, the Heat was not so deterring a Circumstance in them, as it might be in Whites or Europeans. Indeed were it not for such Success in such Climates, all those very near, and within, the *Tropics*, where its Relief is likely to be very necessary, would be debarred the Use of it: and as this violent Disease was not improbably at first an endemic or a Native of *Africa*, it were hard to suppose, that Providence had rendered it, from that Privation of Cold, which its Name imports, incapable of the greatest Security from the mortal Degrees of it. These Considerations will at least hint, that our Summer may not be the most improper Season for inoculating *Africans* here; the natural *Crisis* of whose Fluids undoubtedly better adapts them to bear, and even to thrive in Heat, than ours; especially if their Colour absorbs Heat, as it has been supposed to do Light. And possibly if any Person of our own Complexion, of a moist or phlegmatic Constitution, and approaching the Winter of Life, was determined to be inoculated, he might prove such a reasonable Exception to the general Disadvantage of our Summer for the Operation, as to render it judiciously preferable; especially if it was, in general, his most healthy Time. Neither is this Season altogether void of some favourable Circumstances for this Distemper, such as the increased Perspiration, and laxer State of the Teguments in it: to which it may be added, that

that not a few of our *English* Summers have been too moderate for the compleat Maturation and Sapour of our Fruits: and that in certain Fact the natural Disease has been, not very seldom, found more benign at this Season than in some Winters with us. Yet as our coolest Summers must have a less simple, and less elastic Air, from some Exhalations, its Inconveniences will generally preponderate; and it must be particularly pernicious to bilious, hot and dry Temperaments, to contract the Small Pocks in it. The Summer then, even our own, seems justly to be rejected, in most Cases and general Situations, for the Operation: though, where the natural Disease was very epidemic, and unusually fatal then, such reflecting Subjects of it, as could not retreat from the Scene of Infection, will not form to themselves the least cogent Arguments, for admitting, at so perilous a Juncture, the least perilous Mode of it. The Consequence from a *Carolina* Summer is no bad Precedent. Neither must we omit here, that the Climates and Summers, Strangers have been habituated to, may well deserve our Consideration on this Head. Thus several Children from *South Carolina* have been very successfully inoculated here in May. I inoculated one as late as June the 1st N. S. or May the 20th O. S. whom indeed I supposed and found a very mild Subject for the Distemper. I inoculated a Gentleman from *Carolina* of about 22, June 14, 1759: and another of 23, from *Bermudas*, the 28th of the same Month, who both

both did entirely well; the last having them very lightly indeed for his Time of Life. I should have been less disposed to it at that Season on Natives here.

The *Italian* Physicians, who obliged us with the earliest Informations of this Practice, are as silent about the Use of it in Autumn, as in Summer; tho' its Prohibition is sufficiently implied in one's confining it, with the *Greek* Woman, entirely to the Winter, and the others limiting it to Winter and Spring. The Summers at *Constantinople* being much hotter and more extended than our own; from the great Attrition and Expence of their Humours then, it must follow, that their Autumns, which cannot greatly differ from the (a) *Hippocratic*, must be sicklier than the *British*. And it happens indeed pretty constantly, that the Inhabitants of *Carolina* are more healthy during the equable, tho' severe, Heats of their three violent Summer Months, than upon their sensible Abatement. For if the (b) Changes of the Seasons, as that great Observer notes, are a principal Source of Diseases, it must considerably depend on their varying the Excretions, particularly that important one of Perspiration, which is certainly much greater at *Constantinople* than here; and consequently subject to a greater, that is, a more sickly, Variation. But if we sup-

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(a) Ἐν φθινοπωρῷ ὀξύταται αἱ νεσοί, καὶ θανάτωδες αἶμα, ὡς ἐπιπλαν. L. 3. Aph. 9.

(b) Αἱ μελαγχολαὶ τῶν ὥρων μαλιστα τικτῶσι νοσημάλαι.

L. 3. Aph. 1.

pose Autumn to commence here rather before the middle of September, according to our lately rectified Style, Experience has convinced us it is a very proper Season for Inoculation, notwithstanding its being unhealthy for many addicted to chronically periodical Diseases. An eminent Physician, whom I had Occasion to converse with on this Disease, said, he imagined the Fall a good Season for the Operation, from our Humours having been previously cooled and diluted by the Summer Fruits. This appears not unreasonable; and we may gratefully observe, by the Way, the abundant Goodness of the omnipotent Physician, in presenting us, at that Noon of the Year, with Plenty and Variety of such Regales as attemper the Blood, and correct the Bile in its most turgescient State; and in showering down a Profusion of the most acid and cooling Fruits, where it abounds most, and where there is the greatest Tendency to Putrefaction from Heat. As the Operation here is almost wholly confined to Spring and Fall, its few Miscarriages must have occurred at these Seasons; and they may, without any material Error, be equally divided between them. After the first Patient BOYLSTON lost, which was in August, none of the other five died, 'till very late in November, when their Winter, in *New England*, may be reckoned to set in.

The first Inoculators selected Winter solely for the Operation, and if we consider the Climate and Air of *Constantinople*, that Season, when they are
generally

generally the most free from pestilential Diseases, promises to constitute the best Temperature for it there. But the Question is, Whether it is so in our own, or in still more northern Regions, where the Cold is very rigid, and sometimes extreme? The most favourable Quality of Cold, with Regard to this Disease, seems to be its Opposition to that Putridity of the Humours, which often attends the severest Degrees of it: its most unfavourable one is, that it is apt to render the Vessels, Ducts and Teguments too rigid, and the Blood itself, perhaps, too compact; from which last Circumstance a greater internal Conflict and Fever may ensue, as a more difficult Eruption may result from the first. And tho' a very gradual Eruption, after Infection, would be desirable, where we had Reason to suppose it the Effect of a very moderate Assimilation: yet if the Humours, when considerably variolated, are retained much beyond the ordinary Term of a salutary Eruption, by a Straitness or Rigidity of the Canals, thro' which they should be wasted to the Surface, a Translation of it may be determined on some internal and less resisting Part. But here it is obvious that Inoculation, which takes off the Resistance of the inoculated Limb or Limbs, and makes their Ulcers attractive of that Poison whose Seeds were infused through them, has a great Advantage of the natural Disease in this as well as other Seasons. With Regard to our own Winters it must be acknowledged, that for several late ones more have died of

the natural Disease than in the preceding or subsequent Summers. Whether this may be ascribed to a greater Number of Persons (among whom are many fresh Subjects for it) residing in *London* during Winter; whether the Check of Perspiration, the more foggy and sulphurous Air, some Alteration of Diet during the Season, or whatever else may cause, or conduce to it, our Bills have demonstrated the Fact abundantly. If such a remarkable Mortality, repeated again in the same Season, should induce People to be inoculated in it (as a great Mortality must be a very natural Inducement) we must grant that it will be more practicable to defend a proper Chamber from all severe Cold, than it will be to render the Air of one, in a very sultry Summer, considerably cooler than the contiguous Parts of the Atmosphere. I should think extreme cold Weather improper for the Operation in many Bodies, and particularly in tense and rigid Subjects, and such as sweated with Difficulty. It might succeed better with the very bilious, and with those full soft Habits, in which we might apprehend some putrid and colliquative Symptoms, from a Summer Infection.

But after this Consideration of the Seasons, with Respect to this Practice, we must remark, that in whichever of them, under whatsoever Climate, the natural Distemper shall rage with the highest Symptoms and greatest Mortality; those inoculated then and there may expect to be affected in some Proportion to its Violence at that
Time,

Time. For the Constitution of the Air then being such, as either co-operates with the external Cause of the Disease, when received into the Blood; or previously disposes the Humours, before Infection, into the worst State and *Crisis* for the Reception of it; or perhaps acteth thus severely, both before and after Infection; the inoculated, who breath the same common Air, and have taken in the same Cause, must, by a necessary Consequence, partake of the combined Effects of both. We have no Doubt however, but that even in this unhappy Situation, the Practice will be approved in its Consequences by a very favourable and distinguishing *Ratio* from the Deformity and Mortality occasioned by the natural Disease: provided that accidental Infection has been effectually avoided (which may sometimes be very difficult to avoid in a variolous part of the Atmosphere) and the Subjects of it have been seasonably and judiciously prepared for it. We confess at the same time, that if they could securely retire (and especially those of the most suspected Habits) beyond the Contact and Influence of such a Contagion and Epidemy, it would be much preferable to Inoculation at such a Juncture. This Occasion may also instruct us, how advantagious it must be for the Subjects of this Disease, and especially for the worst of them, to be inoculated, when the natural Disease is of so benign a Character, as not to kill above * one in forty-five or fifty; or, as some have said, if we could but believe them, one in a hundred; at

* See P. 135.

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whatever Season of the Year this very happy Constitution of the Air should occur. Under such Circumstances perhaps we ought not to despair of the Accomplishment of Mr. LA CONDAMINE'S Prediction ——— That not one of the inoculated would die.

We shall endeavour to be the more concise on the most and least favourable Complexions and Temperaments for this Disease (the former being supposed considerably indicative of the latter) since much of this has been occasionally insinuated and interspersed in some of the former Sections. Besides which, the Temperaments, or the Humours, which greatly constitute them, have no insignificant Relation to the different Stages of Life, and Seasons of the Year, which have been already considered. Thus meer Children compared, not with each other, but with the Generality of those at other Stages, are rarely bilious; meer Youth is rarely phlegmatic, or old Age very sanguine. And thus, in the Spring, the rosy Blood seems gently expanded; in Summer the Bile abounds, and in Autumn and Winter Phlegm and Rheum. But when we come to consider Individuals, abstracted from the different Stages of Life, and Seasons of the Year, undoubtedly those in the same Stage differ, and even in the same Season, greatly, in Temperament. I have imagined, in general, that the Complexions which exhibited a soft damask-like Rosiness in the Countenance, with a mild, unardent Vividness of the Eyes and Aspect, were the most happily

pily disposed for this Disease. This seems to promise a full Proportion of a fine, simple Lymph, for a favourable Dilution of the inflammable red Globules. Some Drops of a rich, bright, crimson Tincture, instilled into a Quantity of pure, transparent, elemental Water, that might not affect the tinging Body by any mineral, or metallic Addition, may give us some Idea of such an Appearance; however short of the inimitably mild and corrected Glow, which animating Nature softly diffuses, in this temperate Climate, over the Countenance of many of the gentler Sex. It should seem, in these fine Originals, as if the Bile were perfectly secreted by its proper Organs; the *Rete mucosum* nearly colourless, and its Envelopements again delicate, smooth and clear. And yet I have been convinced, that an Exception may occur to the entire Success of this happiest Complexion for the Small Pocks, in the second Daughter of the late brave and worthy Sir PETER WARREN; which young Lady, under this very promising Appearance, and at about the Age of six, took a severe Quantity of it, from which she recovered, not without Difficulty; and which left too many Traces of its Triumphs behind it. But we must not omit, that she had heated herself greatly in *Kensington* Gardens before Seizure; and was surprized by the Sight of one newly recovered from the Disease: under which aggravating Circumstances, a Person of a less happy Complexion for the Small Pocks, must, I apprehend, have certainly died. Miss WARREN,

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(since the Honourable Mrs. FITZROY) who has that Complexion we have attempted to describe, had before been inoculated by Serjeant HAWKINS, and has scarcely a perceivable Trace of the Disease.

Those who have Flush enough to be termed ruddy or sanguine, if not too deep, and moderately clear, frequently succeed well when young, in the natural Way; notwithstanding they generally assimilate more than the former, as it is not unusual to see considerable Traces of this Disease in wholesome ruddy Faces. But the Time of Life when such were seized, the Climate and Season of the Year, their Way of Living and Exercise, just previous to Contagion, and the Density of their Teguments, which must be eroded through by the Pustules, are to be considered in the Estimate. Such, however, generally come off very well by Inoculation. Great Care should be taken not to heat their Blood any Way previous to it. About the Time of sickening, if not advanced in adult Life, they are generally inclinable to Hæmorrhages from the Nose, which have much oftener a good Effect than the contrary: nevertheless it sufficiently contra-indicates the Use of Posset Drinks, or Milk, even tho' diluted.

But where the Redness should be so intense, as to incline towards a Shade of Purple in the Face; and to protrude in rough Pimples and a sort of Excrescences (which occur oftenest in adult intemperate Persons) we should apprehend

a severe Disease. Their Blood is manifestly pregnant with rich and sulphureous Parts, and such ascending much more into the Face, than they appear on the Trunk or Extremities, apparently depends on much the same Cause* with the Eruption of the earliest and most corroding Pustules there.

The bilious Temperament, that betrays itself in a Yellowness of the Face and Teguments, and an unclear White of the Eye, threatens a very bad Disposition for it. And tho' the *Atra Bilis* of the Antients, and of some antient Moderns, affords me no precise Idea ; yet where I have observed this Colour still more brown and intense (supposing the Effects of Climate and Insolation out of the Question) with a certain concomitant Heaviness of Aspect, a dry Habit, and harsh Voice, I have dreaded even the Inoculation of the Subject ; and would have all, so unhappily constituted for it, to retire, if possible, beyond the Activity of Infection, or their own Attraction of it. The Pale, if clear, may be considered, in some Respect, as contrasted to the Bilious ; and where this Paleness is not morbid, but natural, and as it were hereditary, and may reasonably be supposed to depend on such a mild and copious Humidity of the Constitution (from a smaller Proportion of the red Globules) as is often accompanied with a supple Fibre, they may not be very unpromising Subjects for the Disease, and are sometimes more disposed to flow and nervous, than very inflammatory, Symptoms.

* See P. 190.

But where the Paleness was indicative of a Caco-chymy or Leucophlegmacy, and tinged the Countenance with a Shade of the *Chlorosis*, tho' that Distemper did not exist, we may be likely to experience a perverse Disease. For tho' we do not consider the Lymph in this State, nor even the Phlegm, which may be an Incrassation of it, as the proper Nest, or Harbinger of the Small Pocks ; yet, as it is morbid, there may be some Doubt, whether, as morbid, it might not exasperate the Disease, which it will very probably perplex. And this may be the Case of many of those pale Complexions we observe often severely pitted after the Small Pocks.

But here I would not be understood to suppose, there may not be sundry Exceptions to each of these general Observations on the Happiness and Unhappiness of different Complexions, with Regard to this Disease. I have seen a few to each ; and others may have seen more. It seems sufficient however, that such Observations will prove much oftener true than erroneous. I have known a naturally bilious Cast of the Countenance joined to thin, smooth, and delicate Teguments, which, from the happy Issue of Inoculation in them, I imagined might, in some Degree, have compensated for the bilious Temperament. This, among others, was the State of the COUNT of GISORS : and thus may the other Complexions also be excepted, and qualified, either for the better or worse. The various and even opposite Qualifications of different Bodies for this Disease will

will be so combined in particular Subjects; and our utmost Investigation of the Essence of this Contagion, and of its inborn corresponding Nourishment in the Constitution, are so imperfect, from the Bounds which Nature hath set to our Enquiries into all such Parts of Matter as are not analytically examinable by our Senses; that no considerate Person will be surprized at the Fallibility of our Notions concerning them. Nevertheless as a rational Conjecture, or even lucky Imagination, may sometimes supply the Absence of Sagacity or Penetration, I have really been seldom mistaken in my previous Opinion of those Subjects of Inoculation, who proved to have but few Pustules, and light Symptoms; having been oftener agreeably disappointed by exciting a more gentle Disease than I apprehended. In the very worst Subjects however for this Disease, where Mistakes are not easily incurred, mine have been very few; and I have generally apprized their Friends of the Pain, the considerable Inflammation and Struggle we must look for, under the most advantageous Applications of this Practice in my Power. I have ventured also to let the most reasonable and courageous Subjects of it know, they were to expect a considerable Soreness for a few Days. And I have seen many *such* Subjects of this Practice emerge from a pretty sharp, tho' regular Distemper, most of whom I sincerely think must have sunk under an accidental Infection; which Infection is sometimes not a little aggravated, by its seizing many Subjects of this

Disease, of whatever Complexion or Temperament, immediately after violent Exercise and Fatigue, or after excessive Intemperance, from which unhappy Circumstances those who are properly inoculated are sure to be exempted.

We shall conclude this long Section by enquiring, what different morbid Dispositions should more or less discourage us from the Practice of Inoculation on Persons affected by, or propense to, them: an Enquiry we should probably have declined, had there not been a few Instances of People who have been permitted, and even encouraged, to submit to Inoculation, for other Purposes, than that of introducing the Disease gently; which we cannot avoid condemning very generally, and which did not take its Rise in *Europe*. But after a hearty Averment of our Opinion, that the diseased, the very infirm and valetudinary, as such, are improper Subjects for this Operation, it will be but impartial to distinguish, that some particular Indispositions are more strongly interdictive of it than others. We have never heard, and cannot suppose, any have been absurd enough to recommend this Infection for a Remedy against any acute, contagious, or febrile Disorder; but rather for the Removal or Mitigation of some chronical or periodical Complaint. The Scrophulous then, if of a very hot Intemperies (for we may find them oppositely * circumstanced) are very indifferent Subjects for the natural Disease, and prove difficult, in Proportion, for Inoculation; tho' having emerged,

* See P. 272.

I have really seen a sensible Improvement of their Constitutions. Of both this Difficulty and this Improvement I had a Conviction in the Case of a Youth, from *America*, about seven Years past : and whom, to my Reproach I confess, I did not apprehend to have been such a Subject, 'till in his Decumbiture from Inoculation ; as the young Gentleman appeared very hearty, and free from any glandular Foulness, after a Residence of several Months in *London* (where it appeared his Health had greatly improved) whence I concluded he had been recommended, merely for Education, to the Care of a worthy and eminent Merchant here. This Gentleman however has since informed me, that upon the Youth's Embarkation from *Carolina*, he was so extremely ill and low, that his Friends never expected to hear of his living Arrival in *England*. The Youth himself assured me, in his Confinement, he had been given over more than once by Practitioners abroad ; and was once actually laid out for dead : that he was sick and feverish generally six Months in the Year ; and at other Times had running Ears, and Breakings-out ; scarcely ever sweating (tho' naturally very active when not ill) throughout their fervent Summers, when very great Heat must be imbibed ; and from whence the Inaction of the exhaling Vessels is likely to be an extreme morbid Circumstance. But without any previous Information of his bad Situation there, he was purged here three or four Times, tho' without the least Regard to a scrophulous or hectic Habit ;

bit; and gentle Physic operated very copiously with him. Neither is it strange that he should be easily stimulated to the inferior Evacuations, where the superficial one was so small; his Teguments, for the Age of near fourteen, being uncommonly thick and strong, the Pustules having been unable to protrude to the least Prominence in the Soles of his Feet, and but to very little in the Palms of his Hands. His Complexion was very brown. He could not be said to sicken nevertheless before the latter End of the seventh Day, when he complained of a very general Itching and Tingling, a frequent Token of copious Assimilation. His first Eruption was on the eighth, and proceeded to a very full Crop, which, upon the whole, might be called distinct, tho' it actually cohered in several Spots on the Face. Yet I can truly aver, I never saw so large a Quantity of the Disease with such mild Symptoms; scarcely a Moment's Delirium or Vomiting, and no sensible secondary Fever, his chief Complaint being great external Soreness. He had great Spirits and Patience, for his Load of the Disease: and after he was up, the scrophulous Habitude began to discover itself in different Boils and Tumours, but chiefly in some about the Neck and parotid Glands. But they all healed soon after opening and repeated Purg-
 ing: he sweats freely now thro' his altered Surface, is hale and lively, and I really think a much fitter Subject for his native Country than when he left it. I very seriously apprehend he could
 scarcely

scarcely have survived an internal Infection; which must have disposed one with such a Stock of morbid and variolous *Pabulum*, and such a Surface, to high internal and inflammatory Symptoms. His only Brother died before at *Bristol* of the natural Disease.

But having observed above, that the Evil may also rage in Persons of a cold Constitution, and a low lax Habit (as it often does) in which Situation it will very rarely, if ever, aggravate the Small Pocks, or be aggravated by it; I am certain I shall oblige my Readers by giving them a History directly in Proof of it, which the Candour of the worthy and ingenious Dr. HEBERDEN has communicated to me. I shall print it exactly with his own Introduction, and his subsequent Reflections, which appear truly judicious to myself, and bear all the Marks of his accurate Attention and great Experience.

‘It seems a reasonable Practice to take some care, that at the Time of his receiving the Infection of the Small Pocks, the Person should be as free, as may be, from any other Distemper; lest Nature should be hindered in producing, maturing, or rightly discharging them; or lest she should sink under the Oppression of two Distempers at the same Time. But it may happen, that the Persons to be inoculated may have brought into the World with them some hereditary Taint, which can never be subdued; or they may be so circumstanced, that there may not be Time enough for entirely freeing them from some other Distemper

temper before the convenient Time of their Inoculation. Such Persons must receive great Satisfaction from knowing, that it is a less formidable Thing, than it is often imagined, to have the Small Pocks superinduced upon another Disease; or to have them appear upon one in a very ill Habit of Body.'

'A Youth long afflicted with the Evil, after having suffered all its cruelest Ravages, began to be dropfical, as is usual in the last Stage of the Disease; and in this Condition, in which no one could have expected him to live a Month, he caught the Small Pocks. It proved a most favourable Sort, the Eruption of which, the Maturation and the going off were all perfectly regular and kindly, and did not seem either to be affected with the other Disorders, or at all to affect them. He died a little Time after the Small Pocks were entirely over, and seemingly not an Hour sooner for his having had them.'

'The Venom of the Small Pocks is of a peculiar Kind, and it is doubtful, how far it is capable of being joined or heightened by that of any other Distemper. Sometimes it is observed, that the Disease, upon which the Small Pocks have happened to be superinduced, remains in a State of Quiescence all the Time of the Small Pocks. This was often seen during a certain epidemical Intermittent, which in many Persons ceased, as soon as the Sickness of the Small Pocks began, and constantly made its Appearance again after the Patients had been properly purged at the End
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of the Small Pocks; nor was it found that either of these Diseases was at all affected by the other; excepting only the Disappearance of the Intermittent, during the Continuance of the Small Pocks.'

There cannot be the least Doubt, but these Facts and Reflections from this justly eminent Physician must impart all the Satisfaction his great Humanity can wish, to those employed in this Practice, and to such Subjects of it as may be in the like Situations. I hope too the immediately preceding tho' digressive Case of my Patient Mr. MACKENZIE, which does Inoculation so much Honour, and myself so little, will be readily pardoned for the Illustration it may afford, and the Caution I wish it may recommend to others, of not acquiescing so superficially, as I did here, to present Appearances. Indeed I have indulged myself the more in this Communication, as any similar Acknowledgement, from a Name of Consequence, might tend to revive a very useful old Custom, which seems abolished by most practical Writers; and which is, that, instead of promulging their Successes only, which generally publish themselves; and in which publishing every Empiric can fully equal them, they would farther illuminate us with their Miscarriages and Mistakes also. Now as HIPPOCRATES and SYDENHAM have made, and repeated, the Precedent of attesting their proper Fallibility, which every Quack detests to copy; an Imitation of it may be doubly reconcileable with the Dignity of a Physi-

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cian, and would entirely comport with that of a Philosopher. But if the Dread of less Fame or Money should deter Gentlemen of extensive Opportunities in Practice, from obliging Mankind with such valuable *Desiderata*, during their Lives, a private Memorandum faithfully kept (if that would not cost too much Time) and annexed to their last Wills, might entitle a Multitude of their Survivors to valuable Legacies. — But to return from these *seria mixta joci* : —

All eruptive and cutaneous Disorders, that deserve the Name of a Disease, in general seem to constitute a State improper for this Operation. Thus Dr. JURIN annexes, to the Account of Miss WALLER's Death, who was inoculated in October 1723, and died the eighteenth from the Operation, the Attestation of her Father, that she was leprous. Thus Miss ACOURT of four Years old, inoculated September 1723, who died the twenty-second from the Incisions, is attested to have been subject, in her Infancy, to an Ophthalmy in both Eyes ; and, as she advanced, to a Humour that made her raw from Ear to Ear,* which abated on purging and cutting an Issue, but still broke out again Spring and Fall. She had some of these Excoriations three Weeks before the Operation, but her Issue was suffered to dry by the Nurse's Neglect, which must have been a bad Circumstance ; since we may presume of eruptive Matter, *qua data porta ruet*.

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* This Case appears to have been of a scrophulous Nature.

All inflamed or ulcerated *Viscera* must certainly contra-indicate Inoculation ; since we may too justly apprehend an Exasperation of the inflamed or ulcerated Part from the Disease. A Jaundice and all Disorders of the Liver should particularly deter us from it. Miss ROLT aged between nine and ten, who was inoculated September 1723, and died nine Weeks after it, had a Jaundice of six Months Duration the Year before, which appeared again the following Spring, but was cured before the Operation. All inveterate Ulcers, whose Obstinacy is founded on a morbid State of the Humours, indicate the effectual Cure of such a State, before Inoculation. Hot and hectic Habits must prove bad Receptacles of this inflammatory *Virus*, while they continue such. The Scorbutic, but particularly if of a hot Temperament, must be improper : and all venereal Complaints, if we except a meer Gleet from Relaxation, without Virulence, should be removed previous to Inoculation ; the most judicious Cure of which may prove no bad Preparation for it, if the Strength has not been too considerably depressed by the Evacuations. Yet notwithstanding that extraordinary one by Salivation, Dr. MEAD affirms (1) he has seen many in an Hospital so exhausted by it for the Great Pox, that they were reduced almost to Skeletons, and yet all went very easily through the Small. These Instances are directly opposite to Dr. HAEN's Prediction of the Mortality of the Small Pocks happening after

(1) De Variol. P. 17.

the Use of Mercury, which Dr. TYSSOT says P. 16. was verified by the Event. But of this more particularly in the next Section concerning Preparation.

And indeed if we except the Case of inflamed and ulcerated *Viscera*, it is not improbable, that after some of the rest are removed, and others greatly mitigated, (a judicious Regard being also had to the Nature of the Small Pocks) the Persons lately afflicted by them, especially if they had been naturally well constituted for this Disease, may go through it by Inoculation with a great Prospect of Security, and possibly sometimes even of Advantage. My private Suggestions in this Respect have been considerably strengthened by a very remarkable Case occurring to me in 1758, which I shall beg the Readers Indulgence for presenting to him as briefly, as the complex Nature of it will allow me.

Mr. WILLIAMSON, a very worthy young Gentleman aged about 23 Years and born in *South Carolina*, arrived from thence at *London* in April 1758. He came recommended to my Care for his Health in general (and for Inoculation, if I should think it advisable) by an eminent Practitioner there, whose Patient he had long been; but was so very ill and weak when he left that Country, that he has told me, his Friends scarcely expected he would live to see *Europe*. His Complexion, his whole Surface, and the White of his Eyes were remarkably yellow.

low. He was short breath'd on a little more than ordinary Motion, with a frequent Palpitation of the Heart, a short kecking Cough, Night Sweats, great Langour and general Relaxation. He was impatient of the least Heat, and sweated under the lightest Covering I had ever seen any Person. He was strongly suspected to have been poisoned by the Negros in *Carolina*, having often eat at a Family, who were all, or most of them all, destroyed by Poison; and had not a few of the Symptoms. He had been a long Time in this obstinate Jaundice (for which he had taken many things) joined to a frequent Propensity to spit, not otherwise natural to him, with considerable Thirst; a frequent and severe Pain in his Back; and all the Appearances of an obstructed Liver, &c. Within about a Month after his Arrival, tho' the *London* Air seemed rather to agree with him, he was seized, after a little more Fatigue than usual, with a greater Fever than ordinary (a slow inward one having almost constantly existed) with a greater Cough, and a small spitting of Blood. This confined him from ten Days to a Fortnight, having persuaded him, with some Difficulty, to lose a little Blood; his Strength indeed not admitting of a great deal. Being pretty well recovered of these Complaints, I advised him to make a Tour into the Country in June, where he continued about five Weeks, and rode frequently about, which, with a few deobstruent Medicines, sensibly improved his general Health. But on his Return to *London*, and
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changing his Lodging, his Fever and Cough returned in a greater Degree, confining him to his Bed and Chamber above a Fortnight; and then regaining his Plight and Clearness, which had improved in the Country, but slowly. I had like to have omitted that his *Hypochondria* were tense, and his Belly knotty, as it were; that his Urine, which was in a sufficient Quantity, was very high coloured, and generally let fall, within a very few Hours, the greatest Quantity of an orange-coloured, and sometimes of a thick red farinaceous Sediment, that I had ever seen; which, to the best of my Recollection, he told me, had been the State of it for a full Year before. Nevertheless through his own great Regularity and Temperance, and my incessant Care (for his Disposition, altogether, was friendly and engaging, and his Character truly estimable) with no more Medicine than seemed strictly necessary, by the latter End of October, most of his chronical Symptoms had considerably abated, and others disappeared. His Cough, which had been chiefly in the Night, his Thirst and Sweats were entirely removed; the Region of the Liver was quite soft and equal, the Tumour and Knottiness of his Belly greatly abated, with a sensible, but not a total Improvement, of his Complexion. And now, as further Confinement to avoid natural Infection grew very irksome, and his Situation seemed still very critical, I persuaded him to take the Opinion of another Physician, of very just Reputation and Eminence whom I named, as
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to his Fitness for Inoculation, which I imagined might be safely undertaken ; when that Gentleman told him, ‘ that tho’ he could not be termed a Man in perfect Health, yet, as he continued exposed here to the Chance of natural Infection, which might be very dangerous for him, he thought it would be advisable to submit to Inoculation, through which he believed he might safely pass.’ In brief he was inoculated November 12, did not sicken untill the 10th from Inoculation, but then with a severe *Lumbago*, which alarmed me the less, as it had been habitual to him from his earliest Complaints. He had Eruption the 12th, which was preceded and accompanied by several choleric Stools as yellow as Saffron ; and on the 17th had one very large, which the Nurse described as very red (tho’ without any Blood) and green, or a blewish yellow, foaming like Yeast, on the Addition of Water, to clean out the Vessel. However he had in all little more than one hundred Pocks, over a Surface near six Feet high. He took little Medicine throughout the Small Pocks (often sleeping without an Opiate) but he had been obliged to take some Variety for his other Diseases before it ; besides Asses Milk and *Bristol* Water, which agreed mighty well with him. He was purged the 22d from Inoculation, and twice more afterwards. The Remains of almost all his other Complaints vanished quickly after the Small Pocks : his Complexion become as clear as it had ever been ; he could bear such a Quantity of Covering with-

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out Sweating, as he had not done for many Years. It is remarkable, that all the Blood taken from him before Inoculation, which did not exceed 18 Ounces, taken at 3 or 4 Times, was partly greenish on the Surface; and that some Blood taken after the Small Pocks was florid. He continued in *London* about nine Months after his Recovery, becoming visibly healthy and strong; and at his Return to *Carolina*, was not known at first by many of his Acquaintance. In short he was much better after the Disease, than he had been for some Years before his Arrival, and seemed, abstracted from his other Diseases, to have been, his Age considered, a good Subject for it. His Letter to me, within a Year after his Arrival at *Carolina*, assured me of his good Health. I submit this Case, which is very faithfully, tho' immethodically, related, to the Reflection of my medical Readers, to determine, if the Small Pocks might not have been even of some Service to this Gentleman, as I confess I incline to such an Opinion myself. — His visible Difference, before and after it, is known to a Multitude here. — But to conclude,

The Disorders that appear not so formidable for the Admission of this Practice are such, as depend on an over-moist Habit and lax Fibres. Thus it is not inconceivable, that a slight recent Catarrh or Defluxion from a little Check of Perspiration, and some cold Defluxions on the Joints (supposing the *Viscera* entirely unaffected) might be even diverted, by the Counter-tendency of
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this Disease to the Surface ; and by the augmented Perspiration it may afterwards contribute to Incipient *Oedemas*, or moist Swellings, of the lower Extremities (supposing them not the Effects of any Rupture in the Lymphatics, nor one of the last Symptoms in some fatal chronical Disorders) but the Result of a languid Circulation, a cold and pituitous Mass, or lax Fibres, might be rather corrected by it. There appears to be a certain Incompatibility in some Diseases, which renders it difficult to conceive their possible Existence, at the same Time, in the same Subject. Thus BOERHAAVE, I think; somewhere tells us, that if we could introduce a Quartan, we should expel the Gout by it: and perhaps a late Recovery from such a moderate Intermittent as had left no Obstructions of the *Viscera* behind it, might constitute a Temperament, that would not violently co-operate with the variolous * Infection. I mention this the rather, as I have certainly known Adults pass thro' the Small Pocks very favourably, soon after the former. In brief, the Disorders from a cold and humid Intemperies would by no Means deter me equally from this Mode of Infection, with those from the opposite one: Whence it should seem, as if Dr. WILLIS's Observation, 'that the va-

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* Dr. CHALMERS, an eminent Physician in *South-Carolina*, informs me in a Letter of *February 12th, 1761*. — "Some who were inoculated during the Course of a Tertian, had no Return of it after the Infusion, and were very slightly sick before the Eruption, which consisted only of a few Pustules."

riolous Poison does not act on the vital Humours like Yeast on fermentable Liquors, by depurating them, but leaves them rather fouler than it found them,' should be limited to a hot Intemperies of the Blood and Habit, and restrained from the contrary one; which can scarcely ever be increased, and has been corrected, by it. We repeat, at the same Time, that we are by no Means prescribing Inoculation to any that may be called sick or ailing; which we have already censured as rash and injudicious, and sometimes it seems to have been enterprized with equal Ignorance and Perverseness. Nevertheless, in a professed Analysis of the Subject, it might have been judged a material Defect to have omitted the different Habits and Circumstances, that might more or less either dispose us to, or deter us from, the Application of it: and more particularly, as this Part has some necessary previous Relation to the Preparation of different Constitutions for this Disease, and for the Operation introductive of it, to which Preparation we now directly proceed.





SECTION IX.

Of Preparation previous to Inoculation.

WHATEVER Impropropriety there may appear in placing the Preparation for Inoculation subsequent to the Operation itself, and to some other Disquisitions concerning it; yet when it is considered, that it may be proper, and sometimes even necessary, to demonstrate to the reflecting Subjects of this Practice its many indisputable Advantages, and the really trivial Pain, or rather momentary Smart, of making the Incisions, in order to procure their chearful Consent to, and even Choice of it; after which Preparation may be supposed immediately to commence, perhaps the Arrangement of it in this Place may be thought sufficiently methodical.

Some Persons have reposed such an entire Confidence in this Infection, by Incision, as to deny the Necessity, or even Usefulness, of any Method preparatory to it; whence it may be presumed several have been inoculated with little or

none, a great Majority of whom have certainly done well. And indeed, to be impartial, as accidental Infection is generally received unconsciously, where we can seldom suppose any preparatory Precaution, there is no Doubt but the meer Circumstance of admitting the Contagion by one or more Incisions on the Extremities, instead of referring the Manner of its Access to Chance, will be attended with considerable Advantages in many Instances; supposing the Inoculated to have submitted to no other Precaution, than that of living temperately, and having carefully avoided natural Infection, which is certainly of the utmost Importance. On the other Hand it seems but reasonable to enquire, whether there may not be certain Means of extending these Advantages to a still greater Number, and to a more certain Degree of Security, in particular Constitutions and Circumstances. And if the Affirmative of this shall appear highly probable, it will be ridiculous to deliberate, whether we should avail ourselves of this greater Security on so interesting, so vital, a Point. Now that different Bodies are differently disposed for the Reception and Issue of this Disease: that the same Bodies are variously disposed for it at || different Times, and under different Circumstances: that a judicious Exertion of medical Knowledge may remove some unpromising Appearances for it in different Constitutions; and frequently mitigate, at least, very alarming ones, are Propositions that must appear to

|| See Mr. Motte's Case, &c. P. 148 to 151.

to resolve themselves affirmatively at once, to every unprejudiced Reflector. Some of the Objectors to Preparation may possibly have commenced such, from the supercilious and over laboured Formality of some Physicians in the Regulation of it : and doubtless there may have been Errors committed on this Occasion, both from our dignified Ignorance, and our solemn Endeavours to conceal it ; which we sometimes may too effectually do, even from ourselves. So that where a Subject should require a more exquisite Preparation than general Temperance and a little opening Physic, or Bleeding, from a manifest sanguine *Plethora*, the rest had better be submitted to the Oeconomy of Nature, than to the Conduct of a Weak Head, of whatever medical Class or Appellation. But having admitted this, may it not be suggested, with equal Probability, that others have slighted Preparation, from a Consciousness, that where a very appropriate one was really necessary in particular Cases and Situations, their Qualifications for it were but moderate ?

This I am seriously afraid has been much too often the Case, to the augmented Danger of some Subjects of this Practice, the Loss of a few, and the consequent Discredit of the Practice itself. For by what other means could these Gentlemen, whose useful Profession is supposed to be confined, at least in *London* and other large Cities, to manual Operations and external Healing, procure so great a Proportion, not to call it a Mono-

Monopoly, of this Practice, but by positively pronouncing, with their utmost Influence, that the Operation never, or very rarely indeed, required any medical Preparation previous to it ; and by asserting also, that it was much oftner prejudicial than not, which an improper and over-laboured one certainly might be. But such a one, it may well be answered, was least likely to happen under the Direction of any good Physician, who had been truly attentive to the Nature of the Small Pocks : And tho' we shall readily admit, that particular Bodies may need no Preparation † at all, not even a dietetic one, and have seen a few such ; yet certainly, whether any *Body is such, or is not*, is as truly an Object of medical Consideration, as the Cure of the Small Pocks itself, or of any internal, acute, or chronical Disease, which has never been supposed the Subject of surgical Application or Treatment. And though I am far from asserting the Infallibility of the best Physician, and still less my own, on this important Point ; and am not disputing the Competence of a very sensible Man, who is a Surgeon, or an Apothecary, but who has thought attentively and extensively on this Disease ; yet strictly as *Physician* or *Surgeon*, it is manifest that important Mistakes on this Topic of preparing, in its various Manners, or of omitting Preparation, are much likelier to happen under the Conduct of the last, than of the first. And as this Matter may regard the Ease, the Beauty, or even the Life of the inoculated, the Conduct

† See P. 291, 292.

which a reflecting Man must embrace for himself or his Family in such a Situation is entirely obvious. All this I affirm, I speak from an abstracted Regard to the Good of the whole Community ; and from some Reflections on the greater Number of Miscarriages by Inoculation, that have occurred in the Course of the last Year.

But to consider the different Modes of Preparation — If we recur to the great RHAZES, our first Author on this Disease, for a *Latin* Translation of whom the World is much obliged to the good Offices of the late worthy Dr. MEAD, we shall find his Chapter, of Preservation from the Small Pocks, to imply a very just and rational Idea of it ; as the greatest Part of his very cooling preservative Method would be an excellent Preparation for it, in a hot bilious Temperament, in Summer. TIMONI says, ‘ the Patient to be inoculated is to take Care of his Diet ; and that the Custom at *Constantinople* is to abstain entirely from Flesh and Broth for twenty or twenty-five Days.’ PYLARINI informs us, ‘ the *Grecian* Inoculatrix enjoined a good *Regimen* as to the six Non-naturals, especially Diet ; for she strictly forbid not only the Use of Wine and Meat, but also of its Broth for forty Days.’ He adds, ‘ it has very often proved fatal to such Patients, as did not follow this Direction ; for new Pustules have been observed to break out, and other dangerous Symptoms to arise.’ This greater Accuracy, on this important Point, was most prudently inculcated by this judicious Physician : and we may
safely

safely affirm, it has been generally observed by our most rational Conductors of Inoculation in *Europe*. Neither can we hesitate, on the Subject of Preparation, to have a principal Regard to the dietetic one.

The Alterations effected in our Fluids and Solids by our Diet are gradual, and without that Violence to the Constitution, which it sometimes suffers from the Operation of very efficacious Medicines. For tho' the Assertion may seem new, it is certain, that all Things we take internally, which are indigestible and unassimilable by us, are Poisons, in some Degree; and prove Remedies but by Accident, in Consequence of their evacuating some Humour, correcting some improper Consistence of the Blood, or removing some Obstruction, more chronically and importantly morbid than their own Substance and Operation, which are sensibly so for a short Time. This Distinction appears reconcileable enough with the Reason of that Aphorism which says, (a) ' If the morbid Humours be evacuated, [supposing them concocted too] the Patient is relieved, and bears the Evacuation well, otherwise not.' Whence Evacuations are generally contra-indicated where there are not such Humours; except a dangerous Plenitude even of good ones, in certain Habits and Circumstances, should render them precautionary and discreet, according to a former

(a) Ἦν οἷα δὲ καθαίρειν καθαίρονται, ξυμμερεῖ τε καὶ ἀφασ-
ως φερεσι' τα ὅ ἐναντία, δυσχερῶς. L. 1. Aph. 25.

former Precept. (b) But as a Body without morbidic Humours, abstracted from this Disease; and without such a Plenitude, may be of a very suspicious Habit with Regard to the Reception of this Contagion; that a Course of such Aliment as is productive of a different Chyle (with a corresponding Difference in its subsequent Commixtions, Appositions and Secretions) may often commute, or mitigate, such Habit, is reasonable; and verified by Experience. I can have little Doubt myself; but that the general Way of living, in any Country; co-operates with the Climate and Situation to compound, and evidently to mark, what may be called, the national Constitution and Temperament; whatever Subdiversities may obtain in many of their Individuals: tho' I conceive the very same kind of Aliment to be elaborated by one Constitution, into Blood of a somewhat different Temperament and Composition, from what it would be in others. Nevertheless, as a different and opposite Diet would probably occasion, under the Action of the same Organs, a greater Diversity of the Blood; than what would result from a strict Similarity of Diet, under the Action of the like Organs in different Constitutions, that Course of it; that is anti-inflammatory and will restrain Fermentation in one Body, will, tho' probably in different Degrees, do so in all; abstracted from a few Sympathies and Antipathies in Food, which are rare,

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(b) Αἱ ἐπ' ἀκρον εὐεξίαί σφαλεραί — τῶν ἐν ἀνέκα τῷ
 εὐεξίᾳ λυτῶν συμφοραί. L. 1. Aph. 3.

and out of the Question. Could we as exactly foretell any other acute Disease a Month or six Weeks before its inevitable Attack, as we can this, after Inoculation is resolved upon, I cannot doubt but a Physician, well versed in such Disease, and in the *Medicina dietetica*, might so dispose the Habit and Temperament of a regular Patient, as to give him a better Prospect of his Recovery, than he could have done without it. And yet we do not seem to have as competent a Notion of the inherent Fuel of any acute Disease, as we may form of this; which indicates such a Diet as may dispose our Fluids to their State in lively active Children; as far as that State may be consistent with a healthful Condition of it, for the Patients Time of Life. In fine the sagacious HIPPOCRATES has been very accurately attentive to the most important Article of Diet. He supposes an Observation of the different Quantity and Quality (a) proper for the Sick (which we endeavour to modify and extend here to those about to be such) to have started the first Hint towards the Discovery of the medical Art; and his Directions for it in Fevers are found consonant to almost universal Experience at this Day.

Nevertheless, tho' we allow this just Precedence to dietetical Preparation, as many will need very little more; and young mild Subjects, who

(a) Ἐμοὶ μὲν γὰρ, ὅπερ ἐν ἀρχῇ εἶπον, ἐδ' ἀν' ἐπὶ ζῆναι δοκεῖ
ἐπὶ τῷ ἐδ' αἰ, εἰ ταύτῃ διαίτημα τοῖσι τε καμνεσιν καὶ τοῖ-
σιν ὑγιαίνουσιν ἡμεροζεν. De prisca medicina.

who are presumed to be generally kept to a temperate, simple and fluid Diet, if free from Worms, cuticular Impurities, and otherwise healthy, will need none at all: * yet in suspici-

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* It is clear from a late Instance, they may even suffer by it. Having two Sons of WILLIAM MIDDLETON, Esq; of *Crowfield Hall* in *Suffolk*, to inoculate last Spring, I told the worthy Parents, that the youngest, a Child of a very clean Habit, delicate Teguments, and fine Complexion, had no Occasion for any further Preparation, being kept from Flesh for several Weeks before. But Mrs. MIDDLETON's Tenderness wishing the Child at least one gentle Dose of Manna, or some other opening Physick, I directed 2 Drachms and a half of *Manna*, and five Grains of *Magnesia alba* which slowly excited three very small Stools, without the least perceivable Sickness or Complaint, the same Day. Yet on the next (this seemingly trifling Evacuation having sunk his mild Habit and lax Fibre below the Standard of Health) he had a Fever, which continued with irregular Remissions, and with a small, but frequent Cough, till the lovely Child fell away greatly, and became very low, not without some Appearance of Danger. It proved however sufficiently periodical in eleven or twelve Days to admit of a little Tincture of Bark, with a small Blister behind the Ear, to which the Fever soon and entirely yielding, he began to recover his Flesh, and chearful pretty Looks. I believe however it was at least a full Month from his Sickening before I thought him in a proper State to receive and to expell the Small Pocks, which he did, by the divine Blessing, very happily, having from 50 to 70 very fine Pustules. This Instance I hope may be of use to some practical Readers, who must observe I did not foresee, that this seemingly small receding from my own Judgment, to satisfy a most worthy Lady and affectionate Mother, could have been attended with such a weakening Consequence. This Child was about 15 Months old, and of Course below the Age I would prefer for the Operation. But as their Children cut their Teeth very easily, and this one never had any Convulsion, and, tho' slight, was very healthy; and as I had inoculated a few Years before another of their Sons of the same Age, but stronger, very happily, he not having above 16 Pustules, it was their Choice to have this inoculated too. His Brother, near two Years older, but of a very different Habit, Complexion and Fibre, had a considerable Number of distinct Pock, with which he was very fore; though the Disease was otherwise benign, and quite regular.

ous Habits, and adult Years, the Aid of Medicine may be very generally necessary. Considerable Things have doubtless been effected in some chronical Disorders almost wholly by Diet ; but then the Perseverance has been chronical too ; and where we propose a much shorter Term for Preparation, we must be obliged, in some Cases, to use more expeditious Measures. Besides, where the Obstacles are very considerable, the properest Diet may become too familiar to effect all we desire ; which sometimes happens from the over-familiar Use even of Medicines, that appeared efficacious at first. — But to come to Particulars.

It is manifest, that whoever is resolved to inoculate Children at the Breast, (which, upon the whole, we have been far from recommending) will have no need to think of a dietetic Preparation for them (provided they have not been so very unseasonably indulged in Flesh and solid Food) and very little of any other. We will suppose their Eruptions in the Month, usually termed the *Gum*, over before the Operation ; and it were desirable that their Breast Milk were rather dilute and thin. Doubtless, whatever some Moderns may have thought, good human Milk is the most appropriate Nourishment for the Infant ; though Nature has not denied us Succedaneums to it, where the Milk of the Parent, or Nurse, might disagree in particular Circumstances and Habits. But as the Nurses of griped and flatulent Infants are obliged to avoid some Vegetables,

tables, lest they should exasperate such Complaints ; can we suppose the Milk of Cows, which is solely recruited from herbaceous and chiefly acescent Food, will be likelier to appease them, than that of a sober, wholesome, well dieted Woman ? And yet, with Regard to this particular Disease, those who are brought up by Hand, as they call it, may not, on that Account, prove worse Subjects for it than those of equal Age and Vigour at the Breast ; as the Juices of the Quadruped, who is not the Subject of it, may perhaps furnish less Addition to its *Pabulum*, than the Milk from human Fluids. Their Pap from Bread and Water, at Intervals, can be no improper Diet, the latter being the great universal Diluter, and the former a gentle Concrete from a soft vegetable Chyle or Milk, prepared for an easy Commutation into a mild and animal one. Yet should such an Eruption ensue, which rarely happens at this Age, and very rarely by Inoculation in it, as to affect the Lips, Tongue and Throat, the Want of that commodious and even fomenting *Apparatus*, which Nature furnished for the Suckling of the Infant, might be an important * Disadvantage. We have, in a former Section, averred our Disapprobation of inoculating at this Time of Life ; but if the more adventurous should risque it, it would be proper to premise a little Manna, or some other gentle Lenient, to those Children who were uncommonly

* See P. 218.

ly costive ; which HIPPOCRATES says (a) is chiefly their Condition, who heave up their Milk the ofteneft. If they have moist Ears, fuch Frictions fhould be daily ufed, as may prevent their drying ; tho' I fhould confider a very fore Head and Ears as contra-indicant of the Operation.

By the Time Children are weaned, efpecially if they are any Way advanced in the fecond Year, they have been too often indulged the premature Ufe of Flefh, and even fipping a little ftrong Drink. They are in a Courfe of Dentition or Toothing, more or lefs troublefome, and more generally fubject to Worms ; tho' this Diforder has been obferved during the early fucking Months in hotter Climates. We muft fuppofe none would advife, or consent to, their Inoculation, under a painful and febrile Dentition, an actual Worm Fever, or any pregnant Symptom of their abounding with Worms. But fuppofing none of thefe the Cafe, and the Operation (which we have given our repeated Suffrage for deferring, in general, to the Age of four or five) determined on, it may be prudent to premife a few Grains of *Aethiops Mineral* and *Corralline*, or fome other good Vermifuge, three or four Times ; then to give a Grain of *Calomel* over Night, to be followed in the Morning with a few Grains of *Rhubarb* by itfelf, or in a Solution of two Drachms of *Manna*. If the Children are advanced towards three Years, and pretty forward for that

(a) Ὁποσοισι ὃ πονυ γαλακτωδες απερμῆται κοιλιν ζυγισται. De Dentitione.

that Term, the Powders may be repeated, and the Calomel increased to one Grain and a half. Pale, phlegmatic and gross Children are often the most disposed to breed Worms; and most liable to Obstructions of the *Viscera*. It may not be amiss to shake such first, and empty their Stomachs of its excessive Phlegm, by a very few Grains of *Ipecacuanna*, or a Drachm and a half or two Drachms, of the Tincture, with a little Oxymel of Squills, and half a Drop of Oil of Rue or Savin. The bitter anthelmintic Powders might be joined here to the *Aethiops*, or to powdered Tin, and their Calomel might be succeeded the following Morning with five or six Grains of Rhubarb in Tansey Water, or with *Elixir Proprietatis* from ten to fifteen Drops, which agrees remarkably with pale cacochymic Habits. The *Aethiops* seems a preferable Vermifuge in those Cases, as its Operation, at least 'till it becomes too familiar to the Constitution, manifestly extends beyond the first Passages, from its known Efficacy in the Cure of cuticular Impurities; which, if considerable from their Quantity, or Irritation, should be removed before the Operation. Thus, without supposing this Medicine preservative from this Disease, with an industrious Writer on it, which might encourage too free an Exhibition of it, we can suppose it may be judiciously used to free the perspiratory Ducts and keep up their important, but insensible, Discharge: as it also probably corrects any exceeding Viscidity and Compactness of the Blood.

A Fortnight may generally suffice for Preparation at this Age, from two to three inclusive.

When Children are advanced to six or seven, and from thence towards ten, their Diet, if not necessarily restrained by the Condition of the Parents, has for some Time consisted of no small Proportion of animal Food: Their Disposition to breed Worms is perhaps also rather increased; from their Love of any bad Fruit that falls in their Way. Here the dietetic Preparation, by abstaining from Flesh and strong Liquids, should certainly be enjoined. Where there are any Symptoms of Worms, or indeed tho' such Symptoms should be but obscure, they should take such Anthelminthics, as are appropriated to their different Temperaments; and as many of them appear pretty sanguine, and some even bilious, in this Stage, it were not amiss to purge such repeatedly with subacid cooling Laxatives, such as Manna and Cream of Tartar, genuine Glauber Salt, *Magnesia alba*, lenitive Electuary, Decoction of Senna and Pulp of Tamarinds; premising from two Grains and a half to four or four Grains and a half of Calomel, (but these last Doses only to the most advanced and strongest in this Stage) to their last Purge or two; as indeed a vermifuge Purge should also succeed their Worm Powders. It were to be wished that their Bodies should be rather moist and open the whole Term, or at least the last Week of Preparation. This may be easily effected, by allowing a few fresh Prunes raw or stewed without

out Senna, which, with their vegetable Diet, will sufficiently answer the Purpose. We are told by RHAZES, that the cool and more acid Fruits, as *Rhus*, or Sumach Berries, Pomegranates, unripe Grapes, and the like, which were even acerb, prevented the Blood from being so fermentable by the Disease; and we know that Acids are the natural Correctors of Bile. Whether those however, which amount to Acerbity, may not by Accident accumulate the Bile by constipating the Belly may be questioned; tho' their immediate Quality were antibilious. The ripe Fruits, at least the summer Fruits, of this Climate are rarely chargeable with this Quality; and particularly our ripe Currans, or their Jelly moderately sweetened, might be pretty freely allowed such Temperaments. I should for my own Part, be for puking the Bilious, even at this Age, to prevent any Infarction of those Vessels, which secrete that humour from the Blood; and keep their Bodies moderately soluble afterwards, to prevent any probable Regurgitation of it, from its Turgescency in the Gall-Bladder, or its Accumulation in the Ducts. With Regard to Worms, it may be reasonable to suppose in general, that Bodies of this Temperament are less obnoxious to them, and the hotter Anthelmintics less appropriate for them, if they were. Dr. NETTLETON says, he observed such as were vomited previously to Inoculation had the kindest Eruption and Symptoms: but probably this might at least depend as much on their different

Portions of the variolous *Pabulum*, which we have suggested may subsist most copiously in bilious Habits ; whence Vomiting will be particularly indicated in such.

With Regard to a preparatory Bleeding in this Stage of Life, we think it can only be adviseable, when there is a very manifest sanguine Plenitude. RHAZES indeed, in his Chapter of Preservation (many of the prophylactic Rules in which may be judiciously varied into preparatory ones, and were, not improbably, intended by him for such, from an Apprehension of subsequent Infection) says generally, that Blood should be taken from such Boys and Youth, * as had not had the Disease. He recommends the taking it, by Venesection, or opening a Vein, from those of fourteen; and by Cupping, from those under it; adding, that their Chambers should be cooled. This last Precaution was manifestly adapted to his own Climate, and may admit of a reasonable Qualification in ours, where the Blood is less generally subject to Expansion and Effervescence. At the Age of seven, or even to ten, a previous Bleeding would seldom be necessary with us ; some unusual sanguine Plenitude may render it prudent, and I should prefer Cupping here. In this and the next Stage the young Patients are subject to over-heat themselves by extraordinary Action and Exercise, which should be avoided with Care previously to Inoculation, and still more after it, particularly if the Weather be tepid. I am repeatedly

* The Latin Translation has it, *pueris et juvenibus*.

peatedly convinced, that any extraordinary Conturbation of the Blood from long external Heat, or violent Motion, may act to as material an ill Effect, as if too much strong Liquor, or an inflaming Meal had been ingested. Besides one Instance of this, which I have * already given, Mr GOLDWYER, an eminent Surgeon at *Salisbury*, informed me, that one of the four, who failed by Inoculation there formerly, was a healthy young Woman of twenty-three Years, who, unknown to the Apothecary that inoculated her, had heated herself over a great Fire two or three Hours, and immediately shifted, just before the Operation. This unhappy Conturbation of the Blood, meerly from great Agitation, (in which it resembles other fermentable Fluids) without the Addition of any new Matter, is not without some Analogy to its Infection from an Imagination surprized and hurried at the Appearance of a lately variolous Subject, after it was reasonable to suppose an entire Evaporation of the infecting *Effluvia*. But to return — If pure Water had been their Drink hitherto, it were well to continue it. To others very clear sweet Whey, when procurable, with or without any of the temperate cooling Plants, may be pretty freely allowed: and light Small-beer neither too stale nor flatulent, may be indulged those who have been accustomed to it. All Cheese should be avoided as much as Meat at all Ages; if they have been used to much Butter, the Quantity

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should

* See P. 263.

should be lessened, and it should be recent and well-tasted. Where the Milk they use is rich and undiluted, a third or fourth Part of pure Water should be added; more especially if the Patients are remarkably sanguine, and young; as considerable Hæmorrhages by the Nose often happen to such on the Invasion of the Disease; which, tho' not very formidable in that Stage to the Physician, may frighten the Patient or his Friends: in which Circumstance, by the Way, it will be proper to withhold all vinous Milk Pofsets, Milk Porridge, and even Milk and Water: allowing Barley Water plain, or very gently acidulated, Pippin Tea, and the like cooling Liquors, if the Bleeding should be very profuse.

But with Regard to the Quantity of their Food before sickening, supposing the Quality well regulated, and their Appetites short of voracious, I should not be for stinting them (tho' it may be prudent that Supper should be a moderate Repast) and particularly in the early Stages of Life, when (a) Fasting is least wholesome and tolerable. Dr. NETTLETON complains of the ill Effects of too low a previous *Regimen*, and particularly in the first Stage of the Distemper. And indeed we might apprehend that Constitutions naturally mild with Regard to this Disease, may be rendered, by too depressing a *Regimen* previous to it, more obnoxious to nervous Symptoms and Insults on the Invasion of it; to which

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(a) Νηστείην θεωρεῖται ἡκιστα μετθανία, πάντων δὲ μαλιστα παι-
δια. L. 1. Aph. 13.

if a competent Fever should not succeed, Eruption might be unhappily delayed, or even fatally intercepted. The Purpose and Scope of Preparation is to remove or lessen the inflammable State of the Blood, and the extreme Tension of the Solids; but not to depress the *Vis vitæ*, especially in this, or the preceding Stages of Life. And, indeed it may happen here and there, tho' seldom, that a Person, at any Term of Life, tho' not actually morbid, may be naturally of so low a Constitution, from an over lax Fibre, and a Languor of the chylifying and nutritive Faculty, that he would prove an improper Subject for this Operation, before he had received some * Invigoration from an eupeptic, or easy digestible, restoring, and even reasonably generous Diet. It will abundantly follow then, that where the Patients in these early, or in any subsequent Stages, have the plainest Signatures of a naturally mild and less inflammatory Habit, a lighter and less tedious Preparation may be judicious. Repeated unnecessary Purging, especially with the stronger Cathartics, may render a Blood, naturally soft and balsamic, too sharp and acrid, a State we would gladly remove: tho' there may be no injudicious Use of such in particular sluggish and cacochymic Habits. If Children, within the Term we have been treating of, have been used but to a small Proportion of animal Food, a shorter Abstinence from it may be sufficient: so that three Weeks in some,

* See Note P. 291.

some, and four in others, may be a convenient Term for their Preparation.

But on the full Approach, and thro' the Progress, of Puberty, to the Height and Vigour of Life, the Case is greatly altered ; especially with Regard to those who were naturally ill disposed for the Small Pocks ; and still more particularly, if they have much indulged in the Intemperance too habitual with many in these Stages. I have little Doubt but Numbers, thus circumstanced, sink under the natural Infection, who might have emerged thro' even that in the preceding Stages. In Fact the ingenious physical Suggestion of our most elegant ethic Poet, That

— *Man, perhaps, the Moment of his Breath
Receives the lurking Principle of Death :
The young Disease, that must subdue at length,
Grows with his Growth, and strengthens with his
Strength.*

Seems full as just, with Regard to the Fuel of this Distemper, as of any other. As the Anticipation of this long and perilous Term then, by an early Inoculation, when a lighter Restraint and Preparation might be generally sufficient, was truly eligible for those, who were subject to this Disease, and must be exposed to it ; so in such as have omitted it, and are equally exposed, as its greater Necessity seems abundantly inculcated from the greater Havock of the natural Disease throughout the Vigour of Life, a judicious and
accu-

accurate Preparation for it is strongly indicated from the same Motive. For tho' some Persons from twenty even to forty may be better Subjects than others were from five to ten, or indeed ever were, this is not taking the Matter as generally as we purpose it; but descending to the Cases of Individuals, which will often have such particular Circumstances, as must be referred to the Consideration of their most intimate Physicians, who certainly are, *caeteris paribus*, their best. To abate and mollify then the extended inflammable *Pabulum* in suspicious Habits, at suspicious Times of Life, we should propose at least six Weeks as the *Greeks* do; and, where it was practicable, two Months, in some Situations, might be still better. The Mitigation of this inborn Fuel, which has been strengthened by Time, expanded with Accretion, and even invigorated by Health (abstracted from all the Contingences of different Climates and Excesses) is undoubtedly difficult: it favours of an Attempt to alter the specific Constitution and *Stamina* of the Patient, and calls for all the Caution, as well as Knowledge, of the Physician: since these can be bent or altered only to a certain Degree, without a morbid Consequence, to avoid which the Alteration must be gradual. *Hic labor hoc opus est.* There may, without Exaggeration, be some Difficulty in misconducting the milder Subjects of the Small-Pocks, thro' the ordinary Progress of it by Inoculation. The oeconomical Functions of Nature are so perseveringly right in

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certain Habits and Circumstances, that Perversity, as well as Ignorance, becomes necessary to an effectual Opposition of them. Such Situations may be justly compared to those (a) gentle Seasons and smooth Waters, in which HIPPOCRATES observes, the Helm may be committed to an indifferent Pilot; while the opposite Circumstances of adult Age and inflammable Constitutions will correspond to his Storms and Billows, which require the utmost Address of the most experienced; and expose that Ignorance of the unskilful, which the fine Weather had concealed. And yet even in such critical Situations, every ingenious and experienced Physician, who has considered this Matter well, may have sufficient Reason to infer, that on availing his Patients of all good Circumstances, Persons naturally of unpromising Temperaments, and less convenient Ages for the accidental Disease, may have a reasonable Expectation of passing very tolerably thro' that by Inoculation. If he is very sanguine, he should undoubtedly be bled early, and pretty freely, yet so as to avoid too great and sudden a Depression. If he is still more intensely sanguine, with deep red or purplish Bumps in the Countenance; and particularly if these are chargeable to hard Drinking (which is not constantly the Case)

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(a) Ἐπει δὲ πολλοὶ γε ἤδη ἰηρῶν ταύτη μοι δοκεσιν ἰοῖσι κακοῖσι κυβερνηταῖς πασχόν· καὶ γὰρ ἔκκεινοι ὅταν ἐν γαλίῳ κυβερνῶντες ἀμαρτανῶσιν, ἔκατασαντες εἰσιν· ὅταν ὃ αὐτοῖς καταχὴν ἀνεμὸς τε μέγας, καὶ χεῖμων, φανερώς ἤδη πᾶσιν ἀνθρώποις δι' ἀγνοσίῳ καὶ ἀμαρτίῳ δῆλοι εἰσιν ὑπολεσαντες τὴν νῆαυ. De prisca Medicina.

Bleeding should be repeated, such a Blood being generally very pregnant with the variolous *Fomes*. This we are endeavouring to lessen; to dilute and lower the inflammable Principles of what remains; and to substitute, by proper Nourishment, such a soft and simple Chyle, as should conduce to a less irritable and irritating Blood. If he has been remarkably fond of Flesh-Meats, and even indulged on such Suppers, he may be allowed for the first Week, to make the Alteration more gradual, white Meat once every other Day. It were undoubtedly to be wished he could entirely abstain from strong Liquor: but if from long Habitude he should prove languid, and seem to digest less for Want of it, one Glass may be permitted after Dinner. The second Week he should begin to abstain wholly from Flesh, but may add every other Day, a Whiting, fresh Water Flounder, or such light simple Fish, to his vegetable Dinner; and an equal Quantity of Water to his Glass of Wine after Dinner, if it is still too irksome to take an entire Leave of it, 'till his Recovery from the Disease. His Diet from hence should be entirely vegetable; his Drink no stronger than good light Table Beer. His Puddings should not be over-stiff, nor crammed with Eggs. Fruit Pyes and Tarts may be allowed, reasonably sweetned: most Vegetables, the hot and acrid (as raw Onions, Cresses, Mustard, Leeks and the like) excepted, are very proper: but particularly, if good mellow Turneps and succulent Spinage are in Season, they are either very excel-

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lent and proper in themselves, or I am much prejudiced in their Favour on this Occasion. If good Vinegar be not disagreeable to him, the moderate Use of it is not like to be inconvenient. The cooling Salads, or with a little Cellery, are not amiss. Young open Spring Cabbage and Sprouts seem preferable to close, heavy, large Cabbage, which, (besides their being considered as an alkaliescent Plant) may have attracted a considerable Proportion of animal Sulphur and Salt into their Substance from their ordinary Compost, during their long Vegetation; as the strong Smell of their Decoction seems to indicate. Such a Savour may certainly result, in some Degree, from the essential Quality of the Plant; tho' in the hotter Climates, where their Texture is less close or solid, and their Perspiration greater, their Savour is sensibly milder, their Odour less indelicate. Yet, when the Sprouts and Spring Cabbages are not to be had, as the other well boiled are apt to keep the Belly soluble, they may be allowed sometimes. I was once inclined to hesitate, upon the same Principle, whether Asparagus, from its known diuretic Quality and Alteration of the natural Smell of Urine, should be freely allowed on this Occasion. Dr. ARBUTHNOT reckons it among the anti-acid or alkalescent Plants; some Physicians have suspected it to be hurtful to the Kidneys, from its Effect on the Urine: and I have heard, I cannot say how truly, that Dr. TRONCHIN forbade it to Persons preparing for Inoculation at *Paris*.

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In this Climate the Soil for it is generally furnished with a high sulphureous saline Compost, which may exalt this Effect of it, without superadding a new Quality, or altering the essential Nature of the Plant from that of the indigenous or wild, which is said to abound on the Banks of the *Euphrates* : tho' some Persons who admire this Plant, remote from *London*, are said to be averse to it here, as stronger and less palatable. But whatever material Diversity this may produce, some have imagined, that particular Salts, conveyed into the Humours, prove attractive of the like there (from the Axiom of *simile simili gaudet*) which they separate and carry off. From such a Supposition perhaps some have advised sick Persons to drink their own Urine ; while others have recommended Sea-Water as a Cure for such Scurvies, as we should ascribe, in some Measure, to a muriatic State of the Blood. Now the sensible Taste or Smell of Asparagus, raw or boiled, has nothing of that particular Odour it superadds to human Urine : if it has produced this, in Consequence of its determining a greater Proportion of excrementitious animal Sulphur or Salt to the Organs of urinary Secretion, and left less of its own behind, this purging by Urine will rather have a Tendency to purify and cool the Blood. All the Passages should be free during Preparation, and the only Doubt can be, whether it may not prove so diuretic, as to evacuate too great a Proportion of the diluting *Serum*. Yet on the whole, tho' we would omit no Hint

that others may improve, from a puerile Dread of Censure, it is probable the Matter is hardly worth a Litigation; and, where Asparagus is liked, it may be used with sufficient Safety, as a soft palatable Mucilage, and a pleasant Variety in this limited Diet: by which, tho' we do not propose any very sensible Depression of the Patient's Strength, we aim at a Mitigation of it; and to add such a Dose of Alloy to the Metal, as may render it more ductile and tractable.

This Kind of *Regimen* will often dispose the Belly to be moist and soluble, and render much purging the less necessary; so that a gentle cooling Lenient once a Week, before the Infusion, will generally be sufficient. It may be prudent however to premise a few Grains of Calomel, proportioned to the Age and Strength, to the two, and in some Instances, to the three last Lenients; by all which we would endeavour at a reasonable Discharge, without great Commotion or Sickiness.

These previous Doses of Calomel, however moderate, oblige us to recur to Dr. HAEN's Prediction * of the Fatality of the Small Pocks after the Use of Mercurials; which Dr. TYSSOT admitting to have been verified in a Girl so circumstanced, we must observe, that this single Event is insufficient to establish a general practical Rule or Precept, although it had been certain, that she died of the Small Pocks from the Effects of the previous Mercury, for whatever Purpose it might

* See P. 275, 276.

have been given. For had we even admitted it to have been very prejudicial in her Constitution, this could not oblige us also to admit, that it would have been so in a different, or opposite, one. It proves indeed that Mercury, or some Preparations of it, did not prevent the ensuing Small Pocks (which by the Way were not from Inoculation) from being fatal to this Individual, which is all it certainly proves. It no ways demonstrates, nor indeed affirms, she had not a very bad Constitution for this Disease; which, on a Supposition that she had, must probably have killed her, had she taken no Mercury, or whatever she had taken, or omitted. As it is not mentioned by Dr. TYSSOT (and we have not seen Dr. HAEN's *Ratio medendi*) for what Distemper she had taken Mercury, it might not have been perfectly cured when she was seized; and might have concurred either to aggravate the Small Pocks, or have made her less able to surmount it. I confess at the same Time, I should have had my Fears for those *many* Dr. MEAD mentions, * who took the Small Pocks in an Hospital, where they had been salivated, probably for the *great*. I should have thought them rather too dry, and too hectically disposed for this Disease, untill they had been tolerably replenished by light fluid Nourishment. Nevertheless, as Dr. MEAD's Credit, in Matters of Fact, may, without the least Detraction, be supposed equal to Dr. HAEN's; and as his *many* salivated

* See P. 275.

ted survived the Small Pocks, while this *one* using Mercury, and not to a Salivation, died of that Distemper soon after it, the whole of these Facts will conclude much more in Favour of Mercury previously to that Distemper, than against it. Yet after all, perhaps these *many* might have been naturally good Subjects for the Disease, and that *one* a bad one: whence the very same Events would probably have ensued, if Mercury had been wholly out of the Question: though this must follow from admitting all the Facts, that Mercury, attended with its most forcible and durable Operation, did not render the Hospital Patients *bad* Subjects for the Small Pocks.

Further, if it be considered, that BOERHAAVE, who must have read, reasoned and practised himself into a just Idea of the Disease, supposed an Antidote against it might be found in Mercury, or a Combination of it with Antimony, deprived of all their Acrimony, it will not impress the Reader with an unfavourable Opinion of gentle Doses of the mildest Preparations of Mercury, in preparing for the Small Pocks. I recollect indeed to have read, without recollecting where, that the *Germans* were very fond of giving Calomel in epidemical Seasons of the Small Pocks, before Seizure, by way of disposing an ensuing Invasion to prove a mild one: now if in such Cases they dealt it out too freely [and Dr. HEISTER's Doses of most Medicines would be thought here very strong ones] Dr. HAEN's Aversion to such an Use of Mercurials might be very judicious ———

ous ——— But tho' we have made this Insertion here, on Account of that Gentleman's Prediction against Mercurials before the Small Pocks, we have found no Reason for contracting the small Doses of *Calomel* recommended in the former Edition. Many more, with myself, have been Witnesses here to the innocent, and, we have imagined, to the advantageous, Use of such gentle, and not very frequent Doses of it, in some Constitutions and Circumstances previous to Inoculation. It is certain however, there are many who do not want it, and some for whom it may be improper: notwithstanding we read from *Philadelphia*, that out of 700 lately inoculated there, but one has miscarried; all, or the greater Part having taken repeated Doses of *Calomel*, with the *Sulphur auratum Antimonii*. But to return from this necessary Digression.

Much the same Preparation will answer for the adult bilious Patient; tho' a single Bleeding may suffice here, particularly where the Habit is dry withal. But a Day or two after the Bleeding a moderate Vomit should be enjoined with plentiful Dilution; and if it terminated in a Stool or two it would not be the worse. He may conveniently indulge in the acid Juices, as those of Lemon and Orange, add the best Vinegar to his Spinage and Greens, and any of the Sorrels to his Salads. In Adults in general, where the Teguments are rigid and thick, and Sweating is difficult, I should think the repeated Use of tepid relaxing Baths, after the former general Evacua-
tions,

tions, and upon empty Stomachs, would bid very fair to be of great Service. Such Teguments too frequently threaten a very bad internal Disposition for the Disease, as they are certainly a bad external Circumstance for it. Dr. HAHN justly observes, that the (a) different Texture of the Skin in different Nations and Families is an adequate Reason for the different Severity of the Disease ; and a chief Cause that some entire Families are deformed by the Scars of the Confluent Small Pocks. RHAZES recommends swimming in cold Water among his other Prophylactics, which with us might prove a better Preservative than Preparative : and in this Climate, where we do not propose to select our only swimming Season for that of Inoculation, it may be advantageously commuted in bad Habits for the other ; where gentle and repeated Frictions will conduce to remove any cutaneous Obstructions ; a subsequent dewy Perspiration will relax the Teguments, and further clear the Ducts ; and where a Quantity of pure Element, repeatedly taken in by the inhaling Vessels may considerably dilute and attemper the Mass ; and thus dispose the Fluids and Solids, as far as we can without Violence, into the young and ductile State. The bilious should indulge the least in Milk, Butter or Sweets ; and
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(a) Atque in tali, tot, et multo pluribus modis variante cutis fabrica, qua nationes a nationibus, familiae a familiis distant, potissimam variolosae difficultatis culpam residere arbitror ; et saepe solam et sufficientem rationem, cur integrae familiae confluentium barbariae expositae eò condemnentur, ut etiam extra luper calia circumferant facies larvatas. *Variol. Rat.* § 96.

if they eat much Asparagus, dipping them in a little of the best Oil and Vinegar, which the COUNT of GISORS did, seems preferable to Butter. RHAZES nevertheless recommends, among his Preservatives, Butter-Milk; and where it does not disagree, itself and its Whey seem well adapted to cool; as they have been found particularly serviceable in some hectic Habits. He also recommended to hot Temperaments an Addition of Ice to their Water. Pure Spring Water would be equivalent here, and answer particularly in the dry, hot and bilious; where the Adults Stomach would bear it tolerably. But the Physician employed can be the only adequate Judge of this and many other Circumstances; and there is little Hazard of his committing any material Error in it, who has thoroughly digested the very judicious Admonition of HIPPOCRATES, in making (a) proper Allowances for the Diversities of Seasons, Climates, Age, Constitutions and Customs. I must aver however, that, in the general Course of my Experience of this Affair, I have known no considerable Inconvenience, but a general Improvement of Body for the Distemper, from this Transition to a fluid and vegetable Diet, from a common one. I have repeatedly heard those advanced in the *Regimen* confess, they were lighter and had better Spirits under it, than from their ordinary Course of Life, which might be called rather liberal than

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(a) Δόξιον δε τι καὶ τῇ ὥρῃ, καὶ τῇ χώρῃ, καὶ τῇ ἡλικίῃ, καὶ τῇ ἰσχύϊ.
L. 1. Aph. 17.

too moderate; no slight Indication of the general salutary Effects of a light and temperate Diet. Soup-maigre, that is, without Meat, of the temperate Plants and Bread, with the fine subacid gelatinous Pulp of the ripe *Tamata* or Love-apple, called by the Botanists *Lycopersicon*, would make an agreeable Variety, and even a palatable Regale in their Food. This reminds me of the general Diet of our *French* Neighbours, which is not ill adapted to this Disease in a bilious Temperament, to which they seem to approach a little more than ourselves; and, upon that Score, might prove more indifferent Subjects for the Small Pocks. But it may be apprehended their Use of small light Wines, and very considerably diluted, of Water by itself, their Sallads, their plentiful Soups, their more limited Use of Flesh, and their whole *Ratio vivendi* or Way of Life, incline the Balance, with Respect to this Disease, in their Favour.* Such a mild moistening Diet gently relaxes the Fibres and Teguments, in Consequence of its diluting the Blood. And such a State of the Teguments has been not seldom experienced to counter-operate many threatening Symptoms from a very copious Eruption: so that the Texture and Consistence of our Invelopements are often at least of equal Import, with their Complexion.

The

* In Fact there is not the same Proportion of Faces scarred or deeply pitted by this Disease in *Paris* as in *London*: tho' their Number here has been thought to lessen observably; since the frequent Use of Inoculation.

The worst Temperament for this Disease remains; which gives me some Idea of what the Antients termed the atrabilious; and which implies to me such a Shade and Darkness of the Complexion, as People commonly attribute to a black Jaundice; in which the Blood seems to be in a kind of empyreumatic State. A small Proportion of these I imagine emerge through the natural Disease: they look constitutionally morbid here, where we cannot consider the meer Climate as conducive to it. An exquisitely instituted Inoculation must give them their best Chance, and even the most judicious one might sometimes miscarry. Considerable internal and external Humectation seems indicated here; and if we could effect a moderate Succulence of the Habit, a Tenuity of the Surface, and a little Clearness of the Complexion, it might afford a reasonable Prospect of Success. It is happy that we do not abound with Persons of this natural bad Complexion and Temperament for this Disease, which generally appears too fullen and inflexible, to submit to a competent Alteration in the adult and advanced Stages, in which it seems to appear more intense too.

Preparation should be so timed and adjusted for Women and adult Virgins, that the Operation might take Place soon after the compleat Termination of the *Catamenia*; or, at the farthest, three or four Days after their going off; which indeed, supposing a gentle Distemper to ensue, will admit an Interval of three Weeks before

their ordinary Return ; a sufficient Term for the Tour of the Matter, and Revolution of the Disease. Doubtless inoculating very soon after this natural sanguinary Depletion of the Sex has a close Resemblance to the preparatory Bleeding we have recommended, in adult sanguine Patients : and in Blood proportionably pregnant with the variolous *Fomes*, the smaller Quantity of the former must contain a smaller of the last : whence the Practice is rational in itself, besides the Sanction of long Experience in its Favour. I shall however observe here, that having long since had a Gentlewoman of a full Habit and about forty, in the natural Disease, and in very hot Weather, her *Catamenia* came down in the *Apparatus* ; and, as she apprehended, in their proper Course. Her Acquaintance were apprehensive of her Danger in the Small Pocks, from her Habit and Time of Life. Her Complexion too was rather brown, but not an unclear one ; for I think there is such a Diversity. They flowed throughout the whole Term of Eruption, which was very moderate for a natural Infection in such a Subject and Season, and she had a truly regular benign Disease.

To confess the Consequence of this Case on myself, I conceived a Hint, that as it seemed highly probable, this regular uterine Discharge consisted of variolated Blood, it might prove an adequate or considerable Cause of the moderate Eruption and kindly Disease that ensued : whence the Inference was obvyious, of so timing the Inoculation

culation of adult Females, especially where we apprehended the greatest Eruption, that the regular Descent of the *Menses* should coincide with the Invasion of the Distemper. In the Conflict betwixt Nature and Diseases, Physicians find some Occasions of judiciously declining that direct Engagement, in which they solely rely on the Strength of material, or, as some have called it, *herculean*, Prescription; but, like prudent Generals, obtain Advantages and final Victory by Disposition and Stratagem. This medical Stratagem, nevertheless, I am unable to recommend from any further and purposed Experience, as I found the former Practice very successful, and thought of the *Spaniard's* Epitaph, who died, because he wanted to be better than well. And yet when I compare the Event of this Case with the Relation Dr. FULLER gives us of a Student at *Oxford*; who, during an epidemical Small Pocks there, was seized with a cruel Pain in the Head and Back, and a *Delirium*, with the Eruption of many Pustules, pronounced to be the Small Pocks by his Physicians; but all which Symptoms and Appearances entirely vanished on his bleeding about two Pounds by the Nose, the Patient quickly recovering, and for thirty Years after never avoiding nor receiving the Small Pocks: I say, when I recollect this Case, and the Probity of the Relator, I have wished the former Hint repeatedly experimented on proper Subjects, justly obnoxious to it, to determine if a similar Benefit should prove its general Event. And as I re-

collect

collect a little Instrument for effecting a Hæmorrhage of the Nose at Pleasure, it may be considered, whether the Application of it in sanguine Subjects, with an inveterate Head-ach, in the Attack of the Disease ; or in a very early Eruption, accompanied with high inflammatory Symptoms, might not be judicious, from its discharging some of the Blood in the *Carotids*, which we imagine may be charged with the most † energetic *Miasmata* of the Disease. But these, and many other Imaginations, I willingly expose to every medical Stricture and *Criterion*, for the Chance of their proving salutary to any, and improvable, or reprovable, by some other, to my own Emolument, or Conviction.

But all Persons should be prepared, if practicable, at a sufficient Distance from * infectious
Scenes

† See Page 190.

* It may certainly be affirmed, that an Inattention to this most important Circumstance has often concurred to any extraordinary Fatality we may have heard of by Inoculation, at different Times and Places. We had a Report at *London* that of 30 inoculated at *Chichester* a Year or two since, 10 died ; of which 10, if this Report be true, a considerable Majority must, rationally speaking, have either imbibed the natural Infection, or have been very crudely treated before or after Inoculation. A Letter from a Practitioner on the Spot, occasioned by this Report, terms it *malicious*, and says the Truth was, that out of 420 inoculated 14 died. This makes one out of 30, a very unusual Porportion ; tho' if the natural Disease had been very destructive, it might have proved a very saving one. But this Practitioner having been acquainted, in Answer to his Letter, that it was still supposed here, ten died out of the first thirty inoculated, after which they might perhaps have inoculated 380 more and lost but four of them, which, with the former ten might make out the 14 out of 420 ; his early Answer to this was intreated, above a Fortnight since, but has not yet been received, which may be owing to other Bu-
siness

Scenes and Accidents ; notwithstanding Multitudes have been prepared, to a very happy Event,
very

finess, or the Time that is necessary to make a thorough Enquiry into the certain Truth. This, if it arrives before the final Impression of this Treatise, shall be added to the Appendix. In the mean time we may observe, how difficult it is to suppose that 380 more would be inoculated the same Season, if ten had miscarried out of the first thirty, which would justly be thought a most extraordinary and uncommon Proportion by the natural Disease, however violent, throughout a considerable City.

My Information of the Events of the Small Pocks of 1760 in *South Carolina* are less precise and satisfactory than I could have wished, as no very exact Register seems to have been kept. I shall submit them however to the Publick as faithfully and as variously as I have had them. A Lady from thence has shewn me a Letter, in which another informs her there have been 3000 inoculated, of which 140 have died.' And to the best of my Recollection it has been said at the *Carolina* Coffee-House, they amounted to 160. Dr. CHALMERS in his Letter of Feb. 12, 1761, says, on a Supposition I had wrote to a Lady in *Charles-Town*, that we heard 160 of the Inoculated had miscarried. — "That it is not in his Power to give me full Satisfaction on this Head, but refers to a Bill of Mortality he incloses, that he says will assure me they fell short of that Number ; altho' they were greater than usual, where things are well conducted in this Way ——— but nothing, he adds, could prevent the Precipitancy with which People engaged in it." This Bill reduces the Deaths by Inoculation, of all Colours, to 92 ; and makes all the Deaths by the natural Disease 848 ; but neither ascertains the Numbers infected by Accident, nor by Art. The same Physician says, " How many have been inoculated I know not, but believe from first to last they rather exceed 3500 of all Colours, which being divided by 92 makes the Deaths by Inoculation 1 in 38, a much greater Proportion than usual indeed, but which, from the Sequel we shall not be surprized at. He also says, " it cannot be ascertained without a good deal of Trouble, how many had the Small Pocks in both ways, but thinks they must probably have amounted to above 6000 in all." Now as we have set down the inoculated at 3500, (tho' he thinks they rather exceeded) these being deducted from the 6000 (tho' he also supposes they might amount to something more) leave 2500 of all Colours for natural Infection, of which there have died by the publick Bill 848, which is a full third and 44 over, of those naturally infected. This indeed was
enough

very near, and even in, *London*, and other infected Towns in *Asia* and *America*. And yet I must

enough to term it *pestilential* as it has been termed, in the *Carolina Gazette*, and proves that Inoculation, at the very worst, was of great Service to this valuable Colony. On supposing 140 of the inoculated deceased, it would have been 1 in 25 : and on admitting the very worst Rumour of 160, it would have been at the nearest in whole Numbers 1 in 22 ; which least favourable Proportion has a vast Advantage over 1 out of 3, or rather something less than three. Now tho' this extreme unusual Violence of this epidemical Small Pocks would go a great Way towards accounting for this unusual Proportion by artificial Infection, as we have more than once observed ; yet it would be unfair to suppress the Disadvantages under which Inoculation was performed in *Charles Town* at this time ; or to conceal the great Probability there was of natural Infection's being frequently blended with it. The Doctor informs me, Preparation commenced with his Patients the 7th of February, and the Operation followed on the 11th, very justly lamenting this short Term for the Improvement of many Habits for this Disease. We may reasonably suppose, that other Practitioners were in the same Situation with Regard to their Patients [and it has been said there were but two then in the Town who had seen or considered the Practice] as he says, " there was no Election of Subjects, for the Incision must be performed on all that offered, from which *alone* they fondly expected the most happy Effect ——— As it was not in the Practitioners Power to perform the Incision so fast as Objects offered, many inoculated their own and other Families ; so that the Bulk of the Inhabitants might be said to be infected before the 16th of February ; betwixt which Day and the 11th about 400 fell to my Lot. but during the Course of this Disease somewhat above 550 were inoculated for me ; besides attending more than 200 in the natural Way." Previous to this he observes, " the natural Small Pocks made its Appearance by the 6th or 7th of February in almost every Street, and acknowledges the Loss of eight Whites and two Blacks out of the Numbers he inoculated." What this Gentleman adds, of the great Scarcity of Nurses, who were not to be procured in a sufficient Number at 3l. Sterling per Week — of the Want of common Necessaries for the Sick, as the Country People forbore coming to Town with them ——— of the Impossibility of seeing each Patient once a Day, and many other such affecting Circumstances, we make no sort of Deduction for in Favour of Inoculation,

must confess, I have been sometimes unhappy, from reflecting on this Circumstance, while I inoculated Persons in *London*, who had not confined themselves for a few Weeks before it, especially when the Disease was much extended. I have been shocked to hear, that Subjects intended for the Operation, have been permitted to walk about indifferently, and transact their Business; and if they were young, it is too probable, they might pursue their Diversions too. However one young Gentleman from abroad, who had been thus imprudently indulged, having had a very difficult, deforming and painful Escape thro' the Disease, by Inoculation, it may probably prevent a Repetition of the same thoughtless Temerity. Nevertheless, to the writing of this, I never judged from the Consequence, that one of the many I have inoculated here, had ever imbibed a previous Infection; which I own I have sometimes been inclined to consider as almost providential, when they would not be confined as I could have wished. We had already observed

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the

culation, as the Subjects of it endured but their Proportion of them, in common with those who were naturally infected. The most material Circumstance seems to be, their being inoculated, and, as it were, wholly unprepared, when the natural Disease was visible in almost every Street of a Town which takes up but a few hundred Acres of Land. As I have constantly insisted, that scratching or dividing the Skin, and inserting the Matter is not all that is essential to Inoculation, and particularly perhaps to that of British Subjects, I think no Person can term this precipitate, indiscriminating, tumultuous and unguarded Administration of the Method, a rightly instituted Inoculation, that is, the most requisite and most salutary one: neither could their Situation indeed have admitted of the very safest.

the Danger and Absurdity of carrying those to be inoculated to the Houses of the Sick, and here earnestly advise all such in *London*, or other constantly infected Places, to keep up, at the least, for a Fortnight before the Operation; as it must be a Satisfaction both to the Patient and Physician, to be free from all Apprehension of any natural Infection, of any Mixture, Confusion, or possible Aggravation of the Disease from a variolous Superfætation, as some may suppose it: notwithstanding we think it must appear probable, with Regard to Inoculation, that where a very little Matter infects, the Addition of a little more, and at a subsequent Term too, is † attended with no Exasperation, nor a longer Continuance of the Distemper. To confess a bold Error perhaps, I have sometimes imagined, that Inoculation being admitted soon after an unconscious Infection, may not only not exasperate its ordinary Operation; but possibly be attended with some Benefit from the Revulsion occasioned by the variolated Incisions, if they should discharge well: but in such a Case, if the Patient miscarries, the Fatality will be generally ascribed to Inoculation, tho' perhaps unjustly, which should increase the Vigilance and Caution of the Inoculator in this Respect. The only inoculated Person I ever saw scarred was a Lady, otherwise very agreeable, who was positive she had taken Infection both ways. I did not attend her, but from the cruel Triumphs of the Disease, I strongly suspect the natural Infection

was

† See the Case of the youngest Miss MARY, P. 210, and also 208.

was in her Case the active one. Persons after Inoculation are generally kept out of the Way of further Infection, which is highly prudent; as it is more natural to be apprehensive of superadding the Mode of Infection we dread to that we embrace, than the Reverse. But if such natural Infection should take place, it must probably happen before the Inoculated sicken by the Operation. And even under such an unlucky Combination, I can suppose the well discharging Issues of the Inoculated may do as much Service; as the small Dose of Poison they received, can do Prejudice. I do not however mention either of these double Impregnations (as they may be called) of the Small Pocks, as what I would wish to have experimented on any innocent Person; but I submit them merely as medical Suggestions, to the Judgment and Scrutiny of others.

It were superfluous to mention Abstinence from salted Flesh during Preparation, when Abstinence from Flesh-meat, and more particularly from all such as use to be salted, has been affirmed necessary. But it may be asked, if Salt itself is allowable with the humid and vegetable Diet enjoined then. We have already evinced, * that the fixed Salt of the human System is, in Effect, marine esculent Salt, and distinct from that volatile alcalious one, supposed particularly inflammable and variolescent. The former is probably never volatilized by the Sun from the saltiest Parts of the Ocean in the hottest Climates; and raised

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* See P. 56.

from the *Caput mortuum* of human Blood and Urine, not without a calcining Heat; while the volatile Salt and Sulphur of dead Bodies very soon and perceivably take Wing, without any chemical Process, in hot Weather. I cannot learn that Sailors, whose Bodies must be considerably saturated with this fixed Salt, are more obnoxious to the high and mortal Degrees of the Small Pocks, than Landsmen of the same Age and Temperament. Doubtless it may have a Tendency to produce that Rigidity of the Solids, which appears an unfavourable Circumstance for an eruptive inflammatory Disease: but it may deserve our Reflection, whether its Resistance of Fermentation and Putrefaction may not counterbalance, and often outweigh, such an Inconvenience. Some Proportion of it has certainly its material Uses in the human System, or we had never, from the earliest Accounts of Time, had so general an Appetency for it. The great Distress of the *Canadians* for Want of it, after the late Conquest of *North-America* was evident in their preferring Salt, or Salt Provisions to Money, in Lieu of their fresh. The *American* Indians are said, when without this Commodity, to supply the Want of it, with the Ashes of Oak and Hickory; which should seem but an indifferent Exchange for it, especially in those preparing for Inoculation. And the Deer and Buffalo of *America* certainly have a Taste or Instinct, by which they discover saltish Soils, where they recurr to lick the Earth, and leave plain Marks of it; the Hunters frequently

quently besetting them at such Haunts. Other Quadrupeds, into whose Food it does not ordinarily enter, are relieved from different Diseases by it : And every one who has perused the many Cases and Cures related by the learned Drs. RUSSELL, WILMOT, FREWIN and LEWIS, in the former's Treatise *de Tabæ glandulari*, must think the Salt-Water a very material Auxiliary in preparing strumous Bodies for Inoculation. But supposing the Constitution clear of every scrophulous Taint, if Salt agreed with them at other Times, such a moderate Use of it, as did not dispose them to be hot and thirsty, may be allowable. The very Sanguine and Bilious might with Advantage perhaps withdraw a little of their usual Quantity at other Times, especially if they were addicted to much, and blend from fifteen to thirty Grains of pure Nitre, according to their Age, daily with it : but this will seldom be necessary in Children, never in Infants, and would be imprudent in cold low Habits.

During Preparation, and after the Infusion, it will be right to confirm the Patient in the best Opinion of its good Effects in general, and the strongest Hopes, even to a moral Certainty, of his own getting happily through it. This may be fairly done ; but if the Suppression of any fatal Miscarriage, or the Extenuation of any less Misfortune from Inoculation, were ever excusable, the Encouragement of a present timorous Subject of the Operation must be the best Excuse for it. Hope is a most efficacious, tho' impalpable

pable Cordial, which very benignly fortifies the oeconomical Functions of Nature, by a direct Application to the Mind and its vital Instruments. Nevertheless, a prudent Physician will remonstrate the Necessity of some Fever, and a few Symptoms previous to Eruption, which so very generally happen even to the Inoculated; that his Prediction of the final good Event of it may be the better credited.

If those to be prepared have any Issue, not yet dried up, tho' it has entirely fulfilled the Purpose of its Application, and the Patient has been judged healthy enough for Inoculation, the Issue should not be suffered to heal and cicatrize, but be gently touched with the variolous Matter, when another Incision, if another shall be thought prudent, is made and infected: since this new Stimulation of an old Sore may be apt to quicken the Course of the Humours to a Part they have been accustomed to.

Thus much concerning variolous Preparation, with Regard to the different Ages and Temperaments; to which we shall add, that such a very latently perverse Subject for this Disease may sometimes, however rarely, present in any of them, as to discredit the best concerted Operation: For tho' we have sufficient Marks and Signatures for distinguishing, in general, the Circumstances and Appearances favourable or unfavourable to Inoculation; yet as the Discernment of the most Sagacious is no ways intuitive; and the most seemingly well constituted Body may have some

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Peculiarity of Texture in the Solids, of Consistence in the Fluids, or of Conformation in some organical Part, concealed from us, but discoverable by this penetrating Disease, a Miscarriage may occur once in a thousand Instances, where the most Sagacious could not have expected it. But this is no more than what occurs, on different Occasions, in the Application of the best Means, under the best human Direction. It has a Tendency, as the late BISHOP of *Worcester* excellently observes, in his Sermon concerning Inoculation, to refer us to our ultimate Dependance on the SUPREME CAUSE, as it suggests our profoundest Veneration of His sole Omniscience, whose Ways are past finding out.

Though some few have mentioned, and perhaps attempted, a further Preparation after they had infused the Disease, I hope I shall be readily excused for treating but summarily concerning a Practice I have never ventured to experience: it being my present Opinion ——— That after the Matter is applied to the Blood, nothing should be done that may occasion any considerable Variation, either in the Increase or Abatement of its spontaneous natural Motion; except an unusual Costiveness in a suspicious inflammable Subject should require a few stewed Prunes to procure an easy Discharge, in Case of the Inefficacy of which, a gentle opening Clyster might be allowed. For if generous Food or cordial Medicines were given under a Notion of fortifying the Constitution and Spirits against this particular Poison, they would be
likely

likely rather to co-operate with its *Stimulus*, and to promote a premature Sickening. If Bleeding, or other Evacuations were used, or the Quantity of their light Food were too much diminished, with a View to moderate the subsequent Fever and Inflammation ; a Confusion, more or less considerable, might be produced in the Type or Form of the Disease : The Sickening might be retarded ; or when the Symptoms appeared, they might, especially in the mildest Habits, prove rather nervous than inflammatory. Hence the Physician must be reduced to kindle up a Fever, for want of a sufficient one to produce Eruption : and if he failed to effect this, and to attract the most active Particles of the infected Fluids into the grosser Circulation, Life might either vanish in the first Stage of the Disease, or tedious * nervous Debilities ensue.

But supposing it possible, merely for Argument's sake, that all Inflammation and Eruption could be prevented in this Manner, without any fatal or unhappy Consequence (which BOERHAAVE theoretically conceived, but was too judicious to attempt in Practice) this would by no means prove satisfactory either to the Patient or Physician : or at least, not until a long and undefeated Experience had demonstrated this wholly inerruptive Infection to be as effectual a Security from a future one, as the usual Eruption and regular Process of the Small Pocks, whether received by Accident or Art. What might be done to an inoculated Convict, in Order to discover

* See P. 89.

cover a Specific for the Disease or an Antidote against its Contagion, is a very different Consideration. But where the Patient is *sui juris*, and has a Right to his Life, I conceive an After-Preparation would be subtilizing too curiously and too dangerously. I was informed however in *Paris*, that Dr. TRONCHIN of *Geneva* gave his inoculated Patients some white Powders frequently each Day after Inoculation, untill they sickened. I had no Reason for receiving this Information with the strictest Dependence; nor did the Informer pretend to know the Name or Quality of the Powder. Supposing the Fact, perhaps they might have been very minute Doses of the *Magnesia alba*, or some nitrous Preparation, full as indolent, or rendered so, by some wholly harmless Addition; and might have been exhibited as much at least from Parade and Policy, as from any real Indication. The late Accounts we have had from *Philadelphia*, of the inoculated taking 3 Doses of *Calomel* and *diaphoretic Antimony*, followed with 3 of *Cornachini*, besides Powders, &c. from the Night before Inoculation unto the usual Time of sickening, seem more dangerous. They tell us however, that all but one out of 700 recovered; which I shall be both glad and surprised to find verified past all Doubt. As the Hint must have been taken from *Boerhaave's* Notion of a variolous Antidote, such a Success must do great Honour to his Memory; and effectually cure Dr. HAEN's Aversion to a *Modicum* of *Mercury* in preparing for this Disease. But

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untill we have more authentic Vouchers in this important Matter than a remote and common News-paper, I shall not hesitate to declare my Opinion, — That there is something absurd and preposterous in this Attempt of *ungiving*, as it were, a Disease we have just imparted: when the Indemnity from a second Visitation of it is expected by all rational Physicians, only from the regular Process of the Disease, through the mild, but natural, Operation of the Cause, which they have communicated with their best *Precaution*; this very Word implying something *previous*, not *subsequent* to an Attempt or Action. Indeed this Officiousness, which may naturally arise from the Inoculators great Anxiety about the Consequence, seems to make too high a Compliment to their own over-rated Abilities, and to pay too slight a Regard to the exquisite, the awful Mechanism and Motions of the vital Machine; which *Hippocrates*, with a very imperfect, if any, Notion of the Circulation, termed *Nature*, and pronounced to be the Curer of Diseases. And it is seriously to be apprehended, that those who assume so arbitrarily to controul these divinely formed and regulated Movements, are often the very Persons who are the most likely to perplex their Directions, and to defeat their salutary Purposes and Operations. Had Inoculation with its justest Precautions succeeded less than usual at *Philadelphia*, which the Paper does not suggest, it might have been some Motive for this Innovation, that carries strong Marks of Crudity, in being directed
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indiscriminately for the good, bad and indifferent Subjects of the Small Pocks, without Regard to different Complexions or Temperaments, or making any other Distinction, but that of the different Doses for Children and Adults. Nevertheless, having thus averred my own Objections to it, I * give this stimulating, evacuating, confusing and unremitting Course of Physic at the Bottom of the Page, with this infallible Prognostic — That if it does not make the Patient worse, it will seldom disagree with his Apothecary.

Notwithstanding I have had the Pleasure of finding this Section in its first Edition, particularly

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The Method is this, the Night before you inoculate, give a few Grains of Calomel, well levigated, with a like Quantity of diaphoretic Antimony, unwashed, proportioning the Quantity of Calomel to the Constitution of your Patient; from four Grains to ten for a grown Person, and from one to three for a Child, to be made up into a Bolus, or Small Pill, with a little Conserve of Roses, or any common Syrup. The next Morning give a Purge of the Pulvis Cornachini, made with equal Parts of diaphoretic Antimony, Scammony, and Cream of Tartar. Repeat the Bolus or Pill three Times, that is, once every other Night after Inoculation, and on the fifth Day give a Dose of Boerhaave's Golden Sulphur of Antimony; about four Grains of it for a grown Person, with two or three Grains of Calomel, made into a small Pill, will operate both as a Vomit and Purge at the same time.

In the intermediate Days, give two or three Papers of the following Powders, viz. diaphoretic Antimony, ten Grains; Sal Prunel, six Grains; and Calomel, one Grain, mixed together, for a grown Person; and about one fourth Part of a Paper for a Child. These Powders are to be continued until the Variolous, or Small Pocks Fever is over; and while the Fever is high, let your Patient drink a Cup of Whey two or three Times a Day; the Whey to be made of Cream of Tartar instead of Runnet, and those that are of a full Habit, should be blooded once or twice within the first eight Days, and must abstain from all spirituous Liquor, and from Meat of all Kinds Broth, Salt and Butter.

Pennsylvania Gazette, June 26, 1760.

larly satisfactory on the Continent, (a) I am not conscious of having intended to prescribe any ways in it to the Conduct of any Physician here, whose medical Erudition and Experience may equal or excell my own. But as Inoculation has sometimes been very crudely enterprized, and conducted too independently of their Counsel and Conduct from various Motives ; and in very remote, and less populous Situations, perhaps oftentimes unavoidably ; I have entertained some Hopes that these Fruits of my augmented Experience and Reflexion on it may conduce to its greater Safety, its more unexceptionable Success, at those extended Distances, where the best personal Advice and Attendance cannot be seasonably procured. For to have disclaimed considerable Experience of, and long Reflection upon it, must be false and affected ; and have rendered this Address to the Publick concerning it absurd and impertinent.

(a) Il faudroit traduire cette section entière pour faire connoître les avis utiles qu'elle contient ———— Recueil de Pièces, concernant l'Inoculation. A Paris 1756.





SECTION X.

*Of the Appearance and Treatment of
the Disease by Inoculation.*

BUT since the most apposite Preparation, hitherto discovered, cannot reduce the inherent Cause of this Disease to the same Quantity or Inaction; cannot bring the vascular and nervous System to the same Tone or Irritability; nor the Integuments, with the Glands and Ducts terminating in them, to the same Stricture or Laxity in all Bodies, it necessarily follows, that a different Proportion of Eruption, attended with different Symptoms, or various Degrees of the same, must happen to a Variety of inoculated Subjects. A Power of effecting the contrary were easily extendible, perhaps, * to the Eradication of the inborn *Fomes* itself, whatever it may be, with all its humoral Attachments, which must render Contagion inoperative, and Inoculation superfluous. Yet tho' we find Preparation and Inoculation neither to effect this, nor to alter

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* See P. 45, 62.

ter the essential Nature of the Small Pocks; (which if they did, the Operation might be no subsequent Protection from it) they very generally produce a great Mitigation of the Symptoms, and an Absence of such as precede the confluent Disease. The violent *Lumbago* particularly, so frequent a Fore-runner of that Confluence thro' which so few emerge, I never knew occur to the Inoculated, under the greatest Eruption it has been my Lot to see upon them. Their Pains are much oftner about the *Scapulae*, Breast, &c. and rather heavy and wandering, than sharp and fixed. I have known the Fever on Invasion pretty acute from Inoculation, but rarely mount to a high *Delirium*, which it often does in the natural Disease, even tho' a distinct Eruption ensues. This seems to intimate that the internal *Carotids*, and the Basillary Artery, branching into the Brain and its Membranes, are not much loaded with a very irritative infected Blood. And as the Incisions, just before sickening, always itch more than usual, and sometimes very considerably, it looks as if this external Stimulation had a particular Tendency to invite the more irritative Particles, into the more external Parts of our vascular System.

It is not unusual for the Inoculated to complain at first of a Giddiness, instead of the severe Head-ach, that sometimes attends the natural Disease. A Daughter of my own, of six or seven Years old, was invaded at the usual Term after Inoculation with a slight *Vertigo*, and asked me, if People

ple that were drunk were not so? She had scarcely any other Complaint, a slight Fever, and about forty Pustules.

Children are apt to doze much before Eruption, and to have a warm dewy Moisture on their Surface, which is preparatory to Eruption, and generally a benign one. There is a frequent *Nausea* too, which terminates for a Time, in puking when they drink, or move out of a decumbent Posture; after which they generally say they are much easier.

Such Flushings and Redness appear sometimes previous to, and sometimes a little after, Sickening, as would give us dreadful Apprehensions from natural Infection: but it is very usual for them to vanish, and a placid gentle Eruption to ensue. I have seen them repeatedly on the inoculated Limb, and if any Part of the Body itches at this Time, which is not uncommon, such Suffusions are apt to follow even a slight Scratching, (a pretty obvious Indication of the State of the Blood then) but they commonly disappear soon, and without any ill Consequence. Such I say I have seen, but Mr. RANBY has favoured me with an extraordinary Instance of this Kind.

A Child of six or seven Years sickened the sixth Day from Inoculation, with the ordinary Symptoms; but the next Day a universal Inflammation flushed out all over the Body, accompanied with a quick febrile Pulse, and a Rash that gave it something of an erysipelatoſe Appearance. It was previous to Eruption, and termina-

minated the third Day, before that was compleat. The variolous Pustules were few, and the Disease was benign. — It was supposed in a former Section * the infused *Pus* might waste and expel some of the humoral *Fomes* before the actual Formation of the Disease; and that these Flushings might be one Method of effecting it. I cannot help conceiving that natural Infection must have operated violently on this Subject; and have mentioned this Case to prevent Practitioners from being greatly alarmed by any transient Efflorescences previous to Eruption, by Inoculation.

Hæmorrhages by the Nose occur, sometimes previous to, and sometimes during, Eruption; especially if the Inoculated are adult and sanguine, or approaching towards Puberty. Such have generally a certain Tenseness in the Pulse, a Pain in the Head, and Flushings in the Cheeks previous to it; and, just before the Eruption, an Itching in the Nostrils. As it was formerly suggested, that the irregular Eruption of the *Menses* in this Stage might be variolous, perhaps it were worth trying, if the Blood from these Hæmorrhages by the Nose would impart the Small Pocks.

Now during any of these Symptoms on the Attack, supposing them in no very exorbitant Degree, I apprehend a judicious Physician will prescribe nothing more than a Regulation of their usual Drinks and Spoon-meats, if they should have an Inclination to the latter, which is rarely the

* See P, 219. 220.

the Case, unless the succeeding Eruption prove little. But where vinous Wheys are allowed, it may be proper to vary the Strength and Quantity of them in different Subjects and Symptoms, and to order different Drinks in some: Thus vinous Possets and milky Drinks have already been forbid to those under Hæmorrhages, or where the Patients were very sanguine, and of that Age most subject to them. Pippin Tea, Balm Tea, and Barley Water gently acidulated, are proper for such. As I suspect the Blood from these Hæmorrhages to be variolated, and conceive no artificial one could withdraw it as specifically, no slight one would induce my Consent to bleeding; in order to check it by Revulsion. Yet if it flowed considerably, and the Patient had been some time costive, a lenient and cooling Clyster should be injected; and this Symptom is much oftner accompanied with a dry, than moist, Belly. But if any Pustules had appeared and did not subside, or greatly lose their Colour, and the Pulse was not low nor intermitting, the Discharge would seldom be menacing. An * Instance has been given, even after Eruption, where it dissipated that, and *judged* the Disease, as the *Greeks* phrase it. The same Discharge before Eruption had perhaps prevented it.

I have rarely met with a positive Indication for Bleeding in the sickening before Inoculation, where the Patient had been judiciously prepared for it. If a raging *Delirium* however should arise

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* See P. 317.

(which is very unusual, and should carefully be distinguished from a light wandering one) a vehement Pain in the Head, inflamed Eyes, the Patient being of a sanguine Complexion, adult, or approaching towards Puberty ; and no such Itching of the Nose, as pretty certainly presaged an imminent Hæmorrhage, Bleeding should be directed, and the Foot certainly preferred for it : after which dry Frictions will be likely to invite a Plenitude of the Vessels, and an open perspiratory State of the Integuments there, which loose Flannel, or Worsted Stockings may further conduce to ; unless the Heat of the Weather should make them rather inconvenient, from their increasing the Heat of the whole Body too much, and thence inclining a larger Proportion to the Head, upon the Analogy of variolous Eruption with Distillation, already mentioned.

If the *Nausea* and Puking be moderate, and accompanied with little Pain or Agitation, I should scarcely recommend a Vomit ; or only some warm Water, or light Green Tea to dilute, and discharge the irritating Contents of the Stomach. I am apprehensive that too unguarded a Recourse to Vomits may tend to press up an extraordinary Proportion of the stimulating Blood to the Brain. And yet if the Patient were bilious, the Contents puked up considerably so, and somewhat viscous withal, like the Yolk of an Egg ; I should be for directing a Puke of Ipecacuanna, or its Tincture and Oxymel of Squills, with reasonable Dilution in the Operation, which would
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be the better, if it terminated in a free Stool. But, very generally speaking, this will not be indicated from Inoculation ; and to confess, what may be erroneous perhaps, I have a further Suspicion of that Commotion, which may ensue from a Vomit in this critical Effervescence of the Blood. The Evacuation, abstracted from such Commotion, where bilious, must be serviceable ; of which I had a very clear Instance in a Gentleman about 23 Years of Age, inoculated June 1759, and born in *Bermudas*. The Puke in this Case consisted only of a large Draught or two of warm Water, or of small Green Tea. But a moderate *Nausea* and Puking generally vanish upon the earliest Eruption.

Opiates are rarely indicated before Eruption is compleat, and should not be given, (which has been already mentioned) 'till indicated from considerable Soreness, slow Suppuration, obstinate Wakefulness, or a *Delirium* from Want of Rest. If the Patient had formerly taken any, their Agreement or Disagreement with him should be previously known. And this may suffice for the Appearance and Treatment of the ordinary Symptoms of the Small Pocks by Inoculation ; when the Impressions of this Poison are chiefly exerted on the Blood, and thence on its Vessels and the Membranes. But when very different Appearances result from its Confinement to the nervous System, an opposite Conduct must be equally rational.

It is one advantageous Circumstance of Inoculation,

lation, that whatever Symptoms succeed about the ordinary Term of sickening after it, we run next to no Hazard of mistaking their Cause, which we might, if arising from an unsuspected Infection. But a Mistake of it in nervous Symptoms might happen more easily, and fatally too, than from inflammatory ones : as most People, and even some Physicians, are too apt to recur to Bleeding in all Convulsions, without attending to the various, and even opposite, Causes on which they may depend ; and Bleeding in the former Symptoms might be truly pernicious.

We had already observed * the contrary Practice of SYDENHAM in such convulsive Insults, by giving a Cordial and applying a Blister, which is doubtless preferable. And yet in my present Sentiments, where I found a competent Fever with a pretty firm Pulse, which did not exist before the Convulsion, succeed to it ; I should be apt to suspend the immediate Application of the Blister, from a Supposition that the Convulsion had done its Office, and exploded the variolous Particles from the Brain and Nerves into the Blood ; the heterogeneous Texture of such Particles in their Cavities seeming no inadequate Cause of such Convulsions. My eldest Son, inoculated at above eleven Years of Age, had a strong Convulsion in the Attack. As he was costive a Clyster was injected, which produced one free Stool. A smart Fever arose a little after the Fit, and exerted a large Crop of the distinct Small Pocks. In the manifestly inflammatory

* See P. 94, 95.

matory Invasion of this Disease Blisters, and hot Cordials, appear, to me, as strongly contra-indicated as any Thing in the *Materia medica* can be. It seems as absurd as it would be to set a Liquor, which was ready to burst its Vessel, or waste itself in a dissipating Fermentation, by or over the Fire to restrain it. It is not denied however, that as such Convulsions generally precede the distinct Pocks in Children, the Blister and Cordial are necessary, if the eruptive Fever should not soon follow ; and if it did, they would be less pernicious than in a high sanguineous Infection and Orgasm, where they have too often been very erroneously applied.

But where the Patient, instead of such Convulsion (which Nature may sometimes use as an Expedient to relieve the Nerves, as she does a Fever to depurate the Blood) lay torpid, comatose and relaxed, doubtless speedy and potent Stimulation is called for. To this Purpose a quick Emetic should be got down, to produce a particular temporary Convulsion, which, tho' a nervous Affection, may be contrasted to the former ; the Benefit from the Emetic in this State being expected from its Agitation ; the very Circumstance suspected in the inflammatory one, where its good Effects were expected from the bilious Evacuation. Nevertheless, if the Belly had been dry for some Days here, with a Tension of the *Abdomen* and *Hypochondria*, a warm stimulant Clyster should be injected. A sharp Blister should be applied to the Neck, or between
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the *Scapulae*, a generous Cordial should be given; and, if these failed to excite the Patient in a few Hours, *Solearia* of Garlick and Salt should be applied, of which I have repeatedly known the good Effects, where Stimulation was necessary. Such a Situation however is very rare by Infection in either Way: but as I have seen it I mention it, and what appears to me its most rational Treatment, if it should happen. This was by natural Infection; a very gentle Eruption ensued, and the Patient did well.

I never saw one of the Inoculated in this torpid, comatose *Apparatus*; but Fits are not so unusual to them. Such a Case has been already * given, where they were very violent, and attended with the Loss of Speech for three Months, of voluntary Motion for many more. And Mr. RANBY formerly obliged me with that of a Child inoculated at the Age of seven. Fits were the very first Symptom, which continued throughout Eruption, and during the State of Maturation too, tho' more remissly than before Eruption, which was favourable, with a moderate Fever; and tho' the Child continued weaker than usual for six or seven Weeks, it is since vegete and healthy — As I saw neither of these inoculated Patients, it is impossible for me to compare their different Quantity of Eruption and Suppuration: but as the ensuing Debility of the Nerves was of a shorter Duration in this last Case, we may sup-

* See P. 89.

suppose the Blood came in for a greater Proportion of Infection.

It has been observed in a former Section, that the secondary Fever rarely occurs by Inoculation, and that where it does, the Tumult is, comparatively, short and light. Such a Degree of it I have more than once seen in the more adult Subjects of this Practice; and have sometimes advised a pleasant temperate Cordial; a little genuine Canary alone, or diluted, is a very good one. In Case of a long previous Costiveness I have advised such a Clyster, as would be likely to produce one free Stool, and if a second followed it might not be the worse. I should be cautious however of producing a Super-purgation at this Time, even tho' the Pustules were turned in the Face; as I have seen some, and heard of other, fatal Instances of purging being encouraged then, in the natural Disease, on Dr. FRIEND'S Authority I suppose, but, as I apprehend, without his Judgment. To the writing of this I never saw but one inoculated * Patient sink under the secondary

* The Negro Youth mentioned P. 63. N. † of whom it was very remarkable, that being inoculated in both Arms, there was a Circle, or rather an Oval, of full the Diameter of a Crown Piece, round each Orifice, which was entirely free from the least Eruption, and were the only Spots of the whole Surface that were so. The Pocks never suppurated any where, (though the Patient was not emaciated) but seemed dry, and, as it were, husky; for having scratched off several of them on the Thighs, &c. there was no Appearance of Matter on his Shirt or Sheets. Blistering Plaisters (perforated on Account of the Orifices) were applied over the Circles round each Incision. The Skin rose and separated, but with little Moisture, scarcely even an Exudation. A Negro Woman who had had a
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dary Fever; where they have, it has probably been much more intense than is usual by Inoculation. But as I am hitherto unacquainted with any other Medicine or Method for the Cure of this, sometimes, irremediable Symptom, than what may occur to any rational Physician; so I declare I have very often found little or no Medicine indicated throughout the artificial Disease; which, whether it promoted or retarded the Practice, might be supposed to render it very palatable, at least to the Patient. Nevertheless re-iterated Purging should never be omitted after the Distemper, however contracted; except the Loss of Motion, or other nervous Debilities, should indicate a very different Treatment; even in which Situation a little Rhubarb might be given once, or perhaps twice, merely to empty the alimentary Canal.

Child or two, and was rather above six Feet high, was inoculated at the same Time with him in both Arms, and with an equal Dose of the same Matter, had a moderate Crop of a very distinct Pock, and did very well. She had, by the Mistake of an Attendant, taken a Purge directed and marked for the Lad, in Preparation: tho' I do not charge his Miscarriage to this Mistake. Some indeed might be apt to argue, that natural Infection (which had killed some Children in the Neighbourhood a little before his Inoculation) had acted in this Case, from the total Absence of Eruption near the Incisions (a most singular Circumstance in such a Quantity of Eruption!) which Incisions scarcely ever discharged one Drop. But notwithstanding all such Suggestions I ascribe his Death to this Disease introduced by Inoculation: and only mention these Circumstances as certain Facts.



SECTION XI.

Of the personal Direction, Administration and Emoluments of Inoculation, in London, and in all other great and populous Cities, or Towns.

THOUGH some Misunderstandings have arose between our eminent Physicians and Surgeons here, touching the specific Profession to which the Practice and Emoluments of Inoculation rightly belong ; were it very clear that the Community had no Interest in the Issue of the Debate, I could gladly have declined interposing any private Sentiments on so invidious an Occasion ; where the most impartial Consideration of the Matter may be likelier to disgust each Party, than to gratify either. But since we have certain Accounts that the Populace, who were at first strongly prepossessed against this Practice, and who so rarely stop at the golden Mean, are rushing into the contrary Extreme ; and go promiscuously from different Distances to little

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Market Towns, where, without any medical Advice, and very little Consideration, they procure Inoculation from some Operator, too often as crude and thoughtless as themselves ; congratulating each other after it over strong Liquor, and returning immediately to their ordinary Labour and Way of living : And since such Ignorance and Temerity cannot fail to dishonour and obstruct this (when rightly conducted) most useful Practice, by an unusual Mortality of the Inoculated, a Disquisition on the Oeconomy, as we may call it, of Inoculation becomes seasonable and necessary.

Here then, while I endeavour at an equitable Survey of the Pretensions of the different Branches of internal and external Healing, to the sole, or conjunct, Exercise of this Practice in these Cities, I shall consider them in that just Subordination to the Public Health, to which they should both be rendered as subservient as possible, and find the private Emolument of each proportioned to their Public Utility ; a Point in which every good Citizen, of every Profession, must concur. As far as I am capable of penetrating into my own Intentions, I can truly aver, that identical Practice of Inoculation, which would most durably and effectually consult the Health of the whole Community, the whole Species, with Regard to this Disease, must fix my Suffrage. Nor can I discern much Merit in such a Determination, as must conduce to the inward Satisfaction, that most durable Interest,
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of every truly reflecting Man ; who cannot be supposed to put all the Wealth and Honour, that might accrue to him throughout a precarious and fleeting Life, in Competition with the Consciousness of a diffusive Benevolence to his living Species, and the Contingence of his posthumous Services to their Posterity.

It has been already premised, that the certain Author of this great Discovery had been hitherto undiscoverable ; and that the first Hint might be casual, which is not improbable of that analogous Operation on Trees, from which it is named ; not without a happy Resemblance between the Melioration of the Fruit, and Mitigation of the Disease. As the Profession then of the Discoverer, which might be fancied to confer some Right, is uncertain, so is the Sex too. But were Possession in such a Case to infer Right, we know that a Physician or two found as many Women in the Exercise of it ; the Doctors informing themselves, and us, from these Matrons, but not without some improving Hints of their own. I would by no Means infer from hence such a strict Coalition of Physic and Anility, notwithstanding a few modern Specimens of it, as to invest them jointly or severally with an exclusive Right to the Emoluments of Inoculation. But to be very serious, a Reflection on the probable Qualifications of these early female Inoculators may admonish any Persons, who are too zealous to inclose the Common, that such Zeal has a natural

Tendency to lay it still more open. For if illiterate Women in *Turkey*, and Negroes in * *Africa*, can safely dispose for, effect, and conduct Inoculation, which is reasonably attested, the obvious Inference will be — Who cannot? And accordingly we find the Claim not wholly dropt by Persons of both Sexes, who, in Respect of Physic, Surgery, and Pharmacy too, may be considered as utter Laïcs. We have mentioned the Proprietor, who was a Planter, inoculating his 300 Slaves, at *St. Kitt's*, himself, *suis ipse manibus*, as Dr. MEAD says. Mr. DANIEL of *South Carolina* inoculated forty, of whom one mist taking. Dr. JURIN had informed us long before this, that Mrs. RINGE inoculated four at *Shaftsbury*, and Mrs. ROBERTS five near *Leicester*; nor have we the least Intimation of a single Miscarriage among them all. In brief the equal Simplicity and Success of this Practice refers a truly reflecting Mind to the Goodness of Providence, in making, what may be so often necessary, so easily attainable; and bids us especially apply to our own Species, what has been observed of the whole animal Creation — ‘Nature’s Children all divide her Care’ — That the Procedure of human Love is ordinarily much more contracted proves the Foundation of the present Misunderstanding between the different, tho’ collateral, Professions; and is a Source of the frequent Want of Candour and Liberality between Members of the very same.

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* See *Colman's Narrative*, P. 35.

But having justly specified these many successful Instances of popular Inoculation, as it may be termed perhaps; if there be any Force in what we have said on the frequent Expedience, and occasional * Necessity, of Preparation, the Advice of some skilful and honest Auxiliary must be as frequently prudent before Inoculation; and the plain Question is, what Profession is then auxiliary? which as plainly answers itself. For tho' I have no Doubt of many sensible and experienced Surgeons or Apothecaries, preparing different Bodies to better Purpose, than as many merely nominal Physicians; yet this is descending to the Talents and Opportunities of Individuals, which will greatly vary; and not distinguishing the different Attainments, that are the specific Objects of medical, chirurgical, and pharmaceutic Pursuits: as we must suppose, *caeteris paribus*, each Person to be most knowing in that Branch he has solely pursued. PYLARINI says, that Inoculation being duly applied, and in Bodies properly prepared by a skilful Physician, proves absolutely safe; and concludes, that this indeed should be reckoned of very great Consequence, in order to bring the Distemper to a safe and happy Issue. And doubtless a judicious medical Predisposition of the Body, to be inoculated, may often prevent the Necessity of the Physician's Attendance in the subsequent Disease; and must ease the un-prescribing Surgeon, who has made proper Incisions,

* See P. 284, 285.

sions, of all Censure, in Case of an unhappy Consequence.

When we are prepared however for the Operation, or judged very happily disposed for it, no one has ever contested the proper Intervention of the Surgeon, whose Office it undoubtedly is, notwithstanding the Facility of it. And that crude Apothecaries or as crude Surgeons may have done Mischief even here, I suspect, from having known one of the latter Stamp make such an Incision for an Issue in a Gentlewoman's Leg, that it discharged a full half Pint of Blood before it could be stopt; which must have formed a notable variolous Ulcer. The Province of dressing the Incisions is plainly chirurgical: but I imagine the Number and Situation of them, since there may sometimes be Reasons for varying both, to lie with the Person, who has more particularly considered the Patients' Constitution and this Distemper: though an amicable Communication between the Physician and Surgeon on such Points appears very reasonable and decent. The inspecting the State, Constitution and Small Pocks of the Subject, the Matter is to be taken from, must also be the Physician's Care; as the Surgeon is to judge of the requisite Consistence and Maturation of it. The Physician is conceived to dispose the Habit into such a temperate State, the Humours into such a mild one, as to afford a good Suppuration. This State we are to suppose the infused *Virus* gradually perverting; but as a free Discharge from the Incisions has been
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very generally thought serviceable, the Art of Surgery is to promote it, and chiefly in the most suspicious Subjects of the Disease: the distinguishing of which Subjects lying again upon the Physician, this evinces the Expedience of their frank and amicable Intercourse, for the Benefit of their common Patient. Briefly, *the proper Disposition of a Body for the Reception of an acute Disease, and the Treatment of it in such Disease, are Matters of medical Consideration. An Issue, Wound, or visible Ulcer are the Subjects of chirurgical Application.*

With Regard to the Share of Apothecaries, as such, in Inoculation; tho' several of them, I believe, have safely conducted many thro' it, it is manifest that in preparing the Body for the Disease, and sending in Medicines of their own directing in it, they assume the Physician, in cutting and dressing, the Surgeon: when it is very obvious, that the strict and regular Conveyance of this Disease in *London* is quadripartite, as a Lawyer might term it; where the Physician should prepare and prescribe; the Surgeon cut, infuse, and dress; and the Apothecary faithfully compound for the Party inoculated: to whom they may still be said, as in *Wales*, to sell the Small Pocks; tho' in more Form indeed, and Forms the Law also demonstrates to be expensive Things. Whether it happened from the last Consideration, that Physicians have been consulted about a Minority, perhaps, of all the Inoculated, may deserve their own Reflection.

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But to whatever Cause it was owing, our proposed History of Inoculation obliges us impartially to acknowledge, that tho' the most eminent Physicians were consulted at first, with Regard to the Introduction and Practice of this Method, there appears to have been a pretty early Disuse of them in it. Mr. HOWGRAVE, an Apothecary, who published his *Reasons against Inoculation* in 1724, at the Close of some Reflections he makes on the Death of the EARL of *Sunderland's* Son, who was inoculated, affirms P. 53 *verbatim*, as follows :

‘ There are five Persons signed the Certificate [he means of Master SPENCER's dissected Body] and not one Physician amongst them. At my first reading it I thought this very extraordinary, that the Son of the Right Honourable the late Earl of *Sunderland*, should not have one Physician to attend him, or if he had, that none of those Gentlemen should likewise sign the Certificate. But I have been informed, from a most undeniable Authority, that after this Child's Death, Mr. AMYAND drew up a Paper, in which he affirms the Child died of a Water in the Head, and not of the Small Pocks, and went from a great Person, to three of the most eminent Physicians in Town to sign it, but they none of them did. When this or any other of my Accounts are called in Question, I shall be ready to produce my Vouchers. Why the Physicians refused to sign it I will not presume to say, but I think it is so plain of itself,

‘ self, that I need say no more of it.’ As we have met with no Contradiction of this in any subsequent Writer on the Subject, we must conclude, as indeed it appears, that no Physician signed the Certificate, which it is probable any previously consulted Physician would have done for his own Sake. If the Child had any visible Tendency to such a Disorder, it should have been removed before Inoculation. Had there been no such visible Tendency to it, a good medical Preparation might have obviated or lessened the particular Cause of such a supervening Fatality. But no such Preparation appears to have been directed for this noble Patient, which makes his Inoculation and the Result of it meer *Handy-work* indeed. This Reflection could not but affect his noble Parents with exquisite Compunction, by whatever Advice Preparation had been neglected or vilified. For though the Child might have died, whatever Physician, or how many soever, prepared and attended him; yet as it was impossible to demonstrate, that they might not either discover and remove his constitutional Unfitness for the Small Pocks; or have dissuaded the Operation, if they thought it irremoveable, the Omission of Advice, in a Patient of such Condition too, was imprudent in itself; it might be very fatal to the Patient; certainly was discreditable to the Operator; and probably proved injurious to the Practice, from more Reasons, besides its Fatality in this Instance.

It is but too natural to suppose, that so early

a Tendency of the Profits from Inoculation into one Chanel might co-operate with a few Deaths of the Inoculated, to the ensuing Stagnation of it for many years. Every Physician, who might approve the Practice, would not be over zealous to promote one, where he found his preparatory Advice towards it excluded ; when the generally comparative Mildness of the ensuing Disease oftner rendered his Attendance less necessary, than that from common Infection. The few Medicines required in Consequence of Inoculation (and we may suppose the Operator, when alone, not too profuse of prescribing, which may often be very right and convenient) could not dispose the Apothecaries to recommend this Method, except they assumed the Physician, Surgeon, or both. Where neither of these was the Case, they would be apt to reflect, with particular Resentment against the Operator, and his Operation, that in the natural Distemper either a Physician was called in, which of Course employed them more or less : that, if a Physician was dispensed with, they were sent for ; or in mild Cases and poor Patients, sometimes a Nurse, at other Times no body was employed, a Surgeon never being recurred to in it, except Bleeding was prescribed, and very seldom where the Apothecary directed it. But supposing such very alarming Symptoms to occur, that the Patient, the Operator, or both should desire a Physician's Attendance ; a right Notion of this Disease must suggest, that as the greatest Service done in the natural Small Pocks

Pocks is almost ever effected before, or in the Infancy of, Eruption ; so in the artificial, the Foundation of a happy Event is to be laid before Infection : since there is no other Distemper to which the *Principiis obsta* and *serò medicina paratur* are more strictly applicable. This, in plainer Terms, the Physician might signify, especially where he thought a Miscarriage likely to ensue ; as he would be apt to suppose, at least, he could have prepared against such Symptoms as he could not remove. Such an Intimation would be a very indifferent Cordial to the Patient ; but unpalatable to the Operator ; and, if a Fatality ensued, must disgust the Friends of the Deceased ; while it presented those who considered their Profession as neglected, their Trade as restrained, with an Opportunity of indulging their Resentment.

Thus it appears very obviously deducible, that the general Interest of Physicians and Apothecaries might have concurred, with the Miscarriages by Inoculation, to fortify and extend vulgar Prejudices, and to leave the natural Disease to its ordinary Course and Havock ; which, while it mulcted the Inoculators, was more advantageous to the former, though it destroyed many Subjects, a great Majority of whom, from all moral Appearance, must have been saved by persisting in the Practice. I do not suppose some Physicians and Apothecaries might not be such abstracted Lovers of their Species, as to recommend the very Method they might be no Gainers,

or even Losers, by : but we are reflecting what the Conduct of a Majority would most probably be; since different Professions do not cancel, and but rarely affect, the leading Principles of Men. It must be confessed it was no Merit, no Self-denial in the Surgeons, while Physicians declined to cut and dress, to be good Friends to so friendly a Practice: but, whatever Horror the Reflexion gives me, I am convinced there have been and are Physicians, who wish it had never reached us. Some of these from having vulgar Capacities (to the Misfortune of their Patients) might mean well, though they acted from vulgar Prejudices. But others, who were better qualified, grew lukewarm in the Promotion of what they had thoroughly considered, and certainly approved; a Gentleman of this Sort having given me his Opinion, that it was not worth the Time of a Physician to attend much to the Subject, as the Practice of it had all fallen into a different Channel. There might be much Truth in this; and tho' it is also true, that a Physician has the least Occasion to be attentive to what he has the least Expectation of being consulted about; it may be queried, how far a truly reflecting one could acquiesce in his Indifference for the Establishment of a medical Practice, he judged essentially vital, because it became less lucrative to himself. Such Faculties and Attainments, and such Integrity, as must combine in the truly valuable Physician, would dispose us to expect a more ingenuous Conduct. The Integrity and public Spirit

rit of HIPPOCRATES in declining, for the Love of his Country, all the Wealth and Honours ARTAXERXES proffered him is an illustrious Precedent for his Successors: as his laconic Epistle to DEMETRIUS on that Occasion, in which he observes, (a) ARTAXERXES was ignorant he preferred the Attainment of Wisdom to Riches, was strictly philosophical. But such an Authority may be thought obsolete, or read like a Legend now: as the many Virtues and extraordinary Qualities he * requires in his Physician, may make this truly wise and good Man suspected rather for a whimsical one, by many Moderns: and doubtless as Self-love is the great Principle of human Action, good, as well as bad, Society, upon the whole, have some Interest in each Individual's natural Attachment to his own.

But even on the Principle of Self-Interest, I conceive the Dissention of Physick and Surgery here was destructive (which Time may further demonstrate) of their durable common Interest on this Occasion: since to prevent popular Inoculation, as I have been forced to term it, it would have been politic to allow it its full Importance, and to preserve it in all that Formality which impresses the Multitude. For if the Physician should make to flight of the Operation, as to say any Body might do it, and the old Woman had; the Surgeon might as truly retort, that she had also
pre-

(a) Βασιλῆς Περσέων ἡμεας μελ' ἀπεμπέλει, ἔκ' εἰδώς ὅτι λόγος ἡμῶν σοφίης χρυσὸν πλέον δύναται. Ex Edit. Foesii. p. 1272.

* See his *Treatises de Medico, et de Elegantia*.

prepared them, and conducted them through the Disease without Phyfic, for any Thing that appears to the contrary. It must be left to the Election then of those to be inoculated, or of their Friends, to determine, whether they should retain both of them, but one, and which ; or whether they should re-instate the old Woman again, and let the Nurse be a *Succedaneum* to them both. Nor is it unlikely that, from moderate Circumstances in some, and unnecessary Frugality in others, the good Lady might have a frequent Preference. I frankly acknowlege my own Opinion, that, even thus circumstanced, Inoculation would be useful to the Publick, upon the whole, since many had better be inoculated by any one than have it omitted : yet considering the great Number of rich Constitutions here, ill disposed for this Disease ; the Necessity of correcting such ill Disposition ; and the Inability of the most sensible Woman to correct it (who might be the least forward to assume it too) the Miscarriages that must be multiplied in a little Time, by a Misapplication † and ill Mananagment of the Practice, would either extinguish, contract, or
other-

† Our Readers have probably had but little Satisfaction from the Effects of popular Inoculation in *South Carolina* in 1760. Besides a very sensible Lady of great Veracity has assured me, that her Father (a Gentleman in Kent) sent his Servant *Silvanus Smeed*, aged 21 Years, to Mrs. *Chapman* an Inoculatrix at *Heartfield*, thirteen or fourteen Miles from his House to be inoculated. He had rode there September 5, 1758, and arrived exceeding hot and fatigued, having taken some preparatory Phyfic at his Master's. His Doctress desired him to prepare immediately for the Operation, which

otherwise revert it into the medico-chirurgical Chancel it first flowed through among us. And indeed after the most cool and impartial Reflections in my Power on this Occasion, it appears reasonable to me, that this very Conduct of it here, is likely to be attended with the fewest Miscarriages ; which, besides their immediate Advantage to these Cities, will be pregnant with that of a more extensive and more experienced Establishment of the Practice ; while it seems the fairest Distribution of the Employment attending it amongst Physic, Surgery and Pharmacy, which may be of some subordinate Import to the Public too. Nevertheless I would always gladly suppose, that 'till the Fund of the Inoculation Hospital is sufficient to receive all proper Objects of it, there will be Physicians and Surgeons of sufficient Humanity, to suffer no one who prefers Inoculation, and can make a Shift to accommodate them-

which he very prudently desired her to defer, as improper immediately after his Journey, and in such a Heat. This sensible Proposal however unfortunately did not agree with the Judgment of his Operatrix, who reply'd, he must be inoculated that very Day, *Tuesday*, or stay untill the following *Tuesday*, that being her lucky Day. The poor Fellow not caring to delay it a whole Week, and taking the old Woman's Resolution for the Result of her Skill, or perhaps of her Conjuraton, gave up his own plain Sense to her Superstition, and being then inoculated, died of a violent Degree of the Small Pocks. Doubtless this Woman's Practice in the Disease was as extraordinary as her Manner of timing it. *Tuesday* is very probably out of Credit with her since : and if her good Neighbours shall find her in sufficient Employment with implicate Obedience enough, it is to be apprehended her increasing Experience will furnish her with more of the same Reasons for discarding every Day in the Week : and afterwards dispose her, like a right classical Witch, to operate only by Moon-light.

themselves under it, to want its proper Application, for Want of Ability to pay for it. And this may be the rather expected, as the Attendance very essentially necessary will be generally small, and the Medicines so few, that any considerate Apothecary, who would, on such Occasions, reduce them to twice the prime Cost, could not fail of being thankfully paid for them.

But if it be the durable Interest of Physic and Surgery, in *London*, not to depretiate this Practice by any future Animosity about it, it is manifestly for the Honour of Persons, whose Conduct, like their Professions, should be liberal. If BARTHOLINE, in addressing his Brother, a Civilian, could observe a *communis nexus scientiarum*, as some Connexion between Law and Physic, how much closer must that between Physic, Surgery and even Pharmacy be, which were both (or all perhaps) professed by HIPPOCRATES, CELSUS and many famous Antients; are at present united in some very eminent Men abroad and at home; and in many Places necessarily combined to the Convenience of Numbers. Then besides the incontestible Utility of Surgery (whose Diagnostics are often more evident, whose Prognostics sometimes less conjectural, than those of internal Diseases) an ingenious Surgeon, or very sensible Apothecary, might have an intellectual Superiority of me, which my different Attainments might not counterbalance. But where this were otherwise, with Respect to other Physicians, methinks there is an odious Impoliteness

liteness and Illiberality in assuming the utmost, which the best Talents and Attainments may, with some Justice, claim. Various and odd Characters there certainly are in human Nature; as one of which there may, however rarely, occur a Combination of Pride and Science. Such I have heard of; but am inclined to consider them only as a few Exceptions to the more general and amiable Union of Science and Modesty. The former seem to me incumbered with some Mis-apprehension of themselves, or some Mistakes concerning Science; since a considerable Portion of what we call such appears necessary to let us into the superficial Quality of our deepest. In fine, in Professions so contiguous, and so antiently united, a few slight and reciprocal Incurfions would be overlooked now and then, from particular Accidents, or from the Swarms in either stretching them a little out of Bounds; for the most useful Professions, like the richest Pastures, may be overstocked. But in a general Invasion both Parties would do well to recollect and apply the Fable of ANAXAGORAS concerning the Origin of Love, which supposes, ‘ That both the Sexes were at first completely blended in one animated Body; but that being afterwards distinguished into two, and separated by the Will of Fate, the former Halves became very solicitous to find each other out, and resume their primitive Union.’ Now perhaps such a Coalition of these two Professions here would be of little Advantage to either: but it will admit of no Debate, whether the Publick

must not be less compleatly served by them in their conjoint, than in their distinct, Capacity; a Point of much more general Import, than a little Shifting and Variation of Property between the two Professions, or any Individuals composing them.

Indeed for several Years past some eminent Physicians in *London*, &c. in Resentment of the Surgeons' Incroachment on the medical Conduct of this Practice, for an Incroachment it indisputably is, have made the little Scratches or Incisions themselves, which must have been very generally to the greater Satisfaction of the Inoculated: And some Physicians have averred, on this Occasion, that were they to destine any of their Sons to the Practice of Physic, as it is now conducted in *London*, they would make them learn and practice Surgery too, that they might have an equal Chance with the prescribing Surgeons. Now were Physicians' Sons, designed to practice here, thus doubly qualified, there is no Doubt but the Custom would become general. This may deserve the Attention of Surgeons in *London*, as it would in a few Years overstock the Company for those Branches of Operation and Application, in which the Physicians have never hitherto attempted to incroach upon them. But the Group, in any Profession, seldom look beyond themselves; and are too apt to disguise such a Conduct, as is far from being liberal, and is often unjust, with the plausible Name of *Industry*; which is certainly a Virtue within its just Bounds,

Bounds, though its Extremities shoot insensibly into a kind of Rapine, and that most sordid Vice, which the Apostle stiles Idolatry. But as my own most moderate Portion of this assiduous profitable Virtue secures me from all its Excesses, and even excludes me from a few of its just Advantages; my Sentiments on this Occasion, to the best of my Knowledge, do not spring from a fashionable Attention to one Individual, nor even to one Profession, but are the pure Result of what appears to me likely to be the most secure Conduct, with Respect to Inoculation, of the Inhabitants within the weekly Bills: and perhaps in the *future*, could such a Consideration operate as it ought, would prove the most politic (being certainly the most honest) for both the Professions. In *Sweden*, where this Method is happily introduced, the Direction of it is restrained solely to Physicians. In *France*, where it has been essayed with some, tho' not an unexceptionable, Success, if it ever be established, it certainly will be on the same Regulation; and so doubtless, wherever it shall be generally admitted on the Continent. Indeed their smaller physical Fees may be one Circumstance conducing to this, tho' far from being the principal one. But should our larger Fees be contracted, from whatever Considerations, it is probable the Price of Surgery must sink in Proportion; especially if all Physicians commence Surgeons too.

Thus far of the Oeconomy of Inoculation within these great Cities and the Borough, where

such a considerable Proportion of the People of *England*, and so very important a Part too, frequently reside ; that when they were much less extended and populous, the Crown thought fit to constitute a College of the Faculty, as Guardians of the Public Health, and Judges of those Qualifications requisite to be intrusted with the Care of it, within certain circumjacent Boundaries. The same Manner of conducting Inoculation must be similarly adapted to other large and populous Cities, where the Multitude and Wealth of the Inhabitants are sufficient to employ and support the Professions distinctly : from which Circumstance we find the most eminent Members of each frequently recurred to, at great Distances from the Metropolis ; People naturally considering such a Distinction as productive of great Experience, and more consummate Accomplishment to each, in their different Professions : which sometimes extends so far, as to give Individuals a Preference in different Diseases, and for different Operations. I have had the Pleasure, during this Impression, to find these Motives for separating the Professions of Physic and Surgery in large opulent Cities, so very similar to those supposed by Dr. MIDDLETON the Motives for separating them in antient *Rome*, that I have referred to the Passage (a) below ; as it shews

(a) Imperatorum autem postea temporibus, cum Civium simul et Medicorum multitudo in immensum quasi excrevisset ; atque in Urbe opibus omnibus abundante, vel *quælibet Medicinæ pars* vectigal, quæstumque satis amplum profitentibus conficere valeret,
tum

shews the same Causes will generally operate to the same Effects, in very distant and different Times and Places.

BUT when we come to remote and small Places, to thin and young Settlements, within the British Dominions, the Direction of Inoculation must necessarily vary. And as People thus circumstanced can scarcely be as well assisted as the former, it is certain I shall miscarry in a considerable Purpose of this Treatise, if it should never reach such, or prove of little Use, tho' it should. We are not without Instances here and abroad, of Crudity and Misconduct in the Application of this great Discovery. It has been misapplied to remove such an ill State of the Blood, as indicated its own Removal, * before the Patient could be

a

tum primum in partes varias secari quasi, et dividi Medendi Ars; tum singulæ deinceps a singulis tractari et administrari; tum vel maxima quæque corporis pars, certusve quilibet dolor *Medicos sibi proprios et unice addictos* habere cœpit: atque hinc denique *Clinicorum, Chirurgorum, Oculariorum, Auriculariorum, &c.* nomina effluxere: quæ tamen uni interdum, eidemque adhuc competere ex Inscriptione supra allata, atque aliis multis liquet.

Dr. CONYERS MIDDLETON's Works, V. iv. P. 200, 201.

* One Instance of this happened ten or eleven Years since to a young Gentleman in the Service of his late Majesty. He had an inveterate Ulcer in his Leg, in Consequence of a Kick from a Horse. Though his Surgeons had gone to the Bottom of the Wound, and found the Bone sound, yet, after healing more than once, it constantly broke out again, and was of two or three Years standing, when he was advised, not having had the Small Pocks, to take them by Inoculation, in Consequence of which it was hoped, the Ulcer might be entirely cured. He was inoculated, took the confluent Small Pocks, as his Brother informed me, and died. I published a short Animadversion on this Case very soon

a proper Subject for the Disease. I have been very credibly assured, that several Years since a young Apothecary at *Wimborne* in *Dorsetshire*, after inoculating several, who recovered in spite of his Ignorance, inoculated two Children in the same Family, who proving fatally infected, he said, an Hour before their Decease, they were froward and wanted Correction. This requires no Comment. Another Country Apothecary, who has, since that, attended a young Gentleman to *London*, to be inoculated under the Advice of an eminent Physician, which succeeded happily, declared, that on his Return he would inoculate all the Country round him : And indeed if this Adventurer has had that Physician's Ability and Erudition infused into himself from this single Case, his Country must be obliged to him, when his Intention is equally accomplished. Now a few successful Instances will be sufficient to convince such a Head-piece, that it may always be done as safely and easily as snapping his Fingers. But if he should not be disposed to take Warning by his Brother of *Dorsetshire*, he may blunder on just such *froward* Patients in his own Vicinage, and hush them as effectually. And tho' I have no Doubt even of Bunglers doing more Good than

soon after in some of the News-Papers, subscribed *Philotechnes* ; averring, that the Inveteracy of the Ulcer, when the Bone was known to be sound, was an Indication, that the Patient's Blood was too foul to receive the Small Pocks, benignly. This was published in Consequence of his Death by Inoculation being published in the *Daily Advertiser*, and, as the Animadverter declared, because he supposed, the Publick had a Right to the whole Truth.

than Mischief by Inoculation, upon the whole; yet it is an Alloy to the great Advantage of it, that it must be sometimes committed to the Management of those, who are most likely to discredit it. The best and briefest Advice I can recommend to such, as are less qualified to profit by a great deal, is, that they would be careful *not to over do*, nor to expect great Effects from much Medicine, when the Disease is formed: since Inoculation tolerably enterprized, and little disturbed, often does great Things of itself. In fact, throughout the general Practice of Physic, *Don't be impertinent*, is an excellent Precept, thoroughly digested only by a few, and of Course but little regarded by many. It refers indeed almost solely to the Benefit of the Sick; many of whom cannot be qualified to apprehend, how much they may be sometimes obliged to their judicious and honest Physicians and Apothecaries (of both of whom we have Room to hope, there are not a few) for the Prescriptions and Medicines they have generously and *thoughtfully* omitted. I would not be supposed at the same Time to intend any general Reflection on Country Practitioners, many of whom I believe to be rational, diligent, useful Men; who may have seen too much Room for Improvement in others. And this is no more than what sometimes happens here and every where, in every Profession, and every Branch of it.

Each Country Surgeon and Apothecary, who singly undertakes the whole of Inoculation, should
inform

inform himself carefully of the best Conduct in the natural Disease, from SYDENHAM, BOERHAAVE, FULLER, and such good Authors, if he had not previously done it. They will thence, and I hope partly from this Treatise also, be instructed, that, as the Blood is, very generally, in an inflammatory and effervescent State on the Invasion of this Disease, the temperate *Regimen*, and temperate Medicines, or sometimes even the cooling *Regimen* and Medicines, are oftner indicated than heating ones, or than stimulative Applications. That nevertheless, as the Fever and Effervescence are instrumental to a necessary Depuration of the Blood from the Effects of this Contagion, it must be observed that they are only to be moderated, not extinguished. That particularly in nervous Infections from this Disease, (which we have recommended to be carefully distinguished from * sanguineous ones) a Fever, which is generally either absent or deficient, is to be excited or promoted. That however in the mildest Subjects of this Disease, and its gentlest Degrees, very little Medicine of any Sort is indicated; but Refrigerants very strongly contra-indicated; a remarkable Instance of which may be seen in the † Note below.

Even

* See P. 86 to 94.

† During my Attendance on five young Ladies by Inoculation in April 1748, who were all excellent Subjects for it, and sickened, on the whole, very mildly, I was sent for in a Hurry, a little before Eruption, to the youngest, between seven and eight Years old, who had suddenly lost her Speech, and seemed by her Eyes and Looks to be in a low kind of *Delirium*. On my Arrival, she could say *no*, but no other Word, and that indiscriminately to every

Even Physicians, who have long resided in Towns, unvisited by the Small Pocks for many Years, may judge it prudent to refresh their Memories in the same Manner, on the Introduction of it; and to reflect on the different Consequences of its accidental and spontaneous Infection. To save all such the Time of reading, and the Expence and Difficulty of collecting, a great deal more relative to the latter Method, is a principal Purpose of this Treatise; in which, besides what is professed Compilation, the Au-
 B b b thor

every Question; having had a much slighter and shorter Attack of the same kind the Evening before, this being also in the Evening. I desired her Friends not to be frightened, for as soon as any Eruption appeared, it was highly probable her Speech and Sense would perfectly return. I ordered immediately a small cordial nervous Draught, with some *Pulvis de Gutteta* and Syrup of Saffron, which the Child took, and, growing warmer sometime after it, (her Pulse intermitting very discernibly, her Flesh being remarkably cool before,) She recovered her Speech and Sense; having next Morning three or four Pustules fairly out, and but few more afterwards, doing perfectly and speedily well, with all the rest. The Surgeon who jointly attended, and had made the Incisions, taking the Prescription to the Apothecary's (since dead) for the greater Dispatch, was asked by the Apprentice, in his Master's Absence, if the Child must take that Draught, besides those she took in common with all her Sisters? This Gentleman asking him then, what Draughts these were, and whether Dr. K—— had ordered them, who, he might well say, had not informed him of any, he was answered, they were nitrous Draughts, which the Dr. had not ordered, but which his Master had sent in for all the Ladies to take (from their first sickening) every six Hours. Upon this Discovery, the Repetition of these Draughts was forbidden; and except one or two Draughts with a little *Diacodium*, no other were taken till they were purged after the Disease. These nitrous Draughts made all the other Ladies sickish at Stomach; and cost one or two of them a very gentle Puke before the Discovery; but had this very menacing Effect only on the youngest, who was a delicate and weakly Child.

thor has risked many Sentiments (some few very novell) of his own ; in a Manner perhaps but moderately digested and methodized for a critical Examination : Yet as they certainly have the Merit of a good practical Intention ; and a still further Consideration, God willing, may advance them to more perfect Maturity, he is the less solicitous about any Censure that has, or that shall, attend them. For as the candid Dr. FULLER says, in his honest hearty Phrase, ‘ No Man qualified for such an Undertaking ought to be so weak-hearted as to refuse it, for fear of a Scratch in his Credit. He is a poor little selfish Wretch indeed, that weighs his Name against the public Good.’ To which I may add, that all the *just* Reproof they meet with must terminate in my own Information, except my own Weakness prevent it.

As a Matter of real Import to the Publick, and the only weighty Argument I can discover against Inoculation, I shall close the whole with observing the obvious Tendency of it to * diffuse the natural Disease ; And where this is not already, the Security even of many, who may very wisely prefer Inoculation, seems not to be put into Competition with that of a Minority, who reject it, and are afraid of the Small Pocks. People have, I conceive, an undoubted natural Right to use a Method discovered by Providence for their own vital Security ; but not at the vital Risque of a Neighbour, who supposes differently
of

* But see p. 119. N *

of it. No Person then I think should inoculate, or bring the Matter, or *Effluvia* of it, into any Place of Resort, where the Disease does not exist: Villages are said to have been deserted, and Markets removed, from the Apprehension of it. It is prudent nevertheless to prepare for it in an uninfected Place, † which cannot injure the Neighbourhood. And after the Patient is inoculated near any large City, which we may suppose at some times a pretty diffuse, and, at others, a more centered, Sphere of Infection; upon his perfect Recovery and retiring for Air afterwards, a Reflection on the surprizing and untraceable Progress of Contagion would induce a humane Person, especially if his Distemper had run high, to reside in no House with any fresh Subjects of the Disease.

Were this Practice once extended into a Custom of inoculating all, who should attain the Age of five, (excepting such sickly Children, as should be deemed proper Exceptions to it) the different Increase of the People, *caeteris paribus*, must be very sensible before the Expiration of a Century: and some convenient Places and Contrivances would of Course be provided for it. But as our Faculties and Tempers, as well as Bodies, are so variously constituted (doubtless for the most wise and harmonious Purposes) that the whole People will scarcely ever unite in the Admission of it; if there were, at an uncontagious Distance from each large and populous Town,

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suppose

† See P. 318 to 321.

suppose the Capital of each County, a suitable Reception, after the Manner of the Inoculating Hospital, that should, when the Small Pocks was in the Town, admit as many as chose to be inoculated (after they had been duly prepared elsewhere) at a reasonable Expence : and, which were still more desirable, to receive those Volunteers who could not pay, (if a moderate Fund could be raised in each County for such indigent Natives and Residents in it) and to have them well aired for a reasonable Time after their Recovery, before their Return to their uninfected Places of Residence : Such an Expedient, I imagine, prudently executed, might be effectual to the Preservation of great Numbers, without hazarding the Life, or Health, of any one beside. But so interesting an Event calls for the hearty concurrent Agency of many ; though the improveable Hint might obviously occur to any one. In the mean time it will be but charitable and prudent in all Practitioners, to accommodate the Expence of the Practice to the humblest Circumstances of such of their Neighbours, as shall not chuse to receive this Benefit, merely at the public Expence : since we may observe the Children of many good fruitful Country People are often obliged to seek for Services here, or elsewhere ; which they have now and then been refused, from not having had the Small Pocks : it being sometimes stipulated in taking Apprentices, that their Parents shall remove and take Care of them, in Case of their being seized with it.



SECTION XII.

Containing some Reflections on the religious and moral Lawfulness of Inoculation.

AS the preceding Sections contain the most faithful Account of the good and bad Effects of Inoculation, with which the Experience of others, and my own have furnished me; it must be wholly unnecessary to add any further medical Arguments concerning it: since after all possible Debate on the Practice, such Effects are the Evidence, that must determine the Suffrage of each intelligent Reader for, or against, it.

But though the medical Objections to this Practice have long been dissipated throughout the *British* Empire, by its very general Consequences, which could not fail in Time to settle the popular and universal Opinion concerning it, if the People were left to see and hear undisguised Facts for themselves, and to form their own unbiaffed Reflections on them; yet we have had, a few
Years

Years since, some religious Objections to it revived by Writers, who, we are to suppose, thought them well established, and who esteemed it their Duty to enforce them with all their Influence: for if they were prompted by any inferior Motives, to the Opposition of so salutary a Practice, at proper Times and Places, they must have been either weak Men or worse. But if they really can make us as certain, as they seem positive themselves, that our procuring this corporal Security against this perilous Disease is full of more important Peril to the Soul; I dare say that all, who have superadded our religious Belief of its Immortality, to that rational Persuasion of it, professed by the best and wisest Heathens, will unanimously desist applying, or suffering, the Practice any longer. For what will it avail to have protracted our Life to the utmost Extent of its usual Duration here (even supposing that could be the Consequence of our getting easily through this one Disease) if our Method of effecting it is really displeasing, and appears presumptuous, to Him, who solely can destroy the Soul, in which our Life essentially consists? What shall we take in Exchange for it, as our Saviour says? This might perhaps be bartering a blissful Eternity for such an Addition to our Span here, as Age and Infirmary must render, at the best, insipid, and too generally even burthensome, and miserable: whence some might think themselves intitled to murmur against Providence, for having granted, or permitted, such incontestable Success to a Practice

tice so offensive to Heaven: and for having at the same time implanted in us that Passion for Life, and that Dread of Pain, of Deformity, and of Loathsomeness, which may have irresistibly determined us to have Recourse to it.

• On the other Hand, if it shall appear, on a fair Enquiry, that the applying or admitting Inoculation, with the best human Precautions, and under a proper Frame of Mind, leaves the Soul, whatever the Event of Inoculation be, just in the same Degree of Security it found it; it will scarcely be controvertible, whether that Reason our heavenly Father has indued us with, should operate more strongly towards our surer Preservation of Life and Health, with Respect to this Disease; or our ill-grounded Fears and Misapprehensions, to the much greater Peril of them. Now as I happen to be strongly of Opinion myself, that the Soul incurs not the least Danger by this Practice, I imagined this Treatise would be less compleat and conclusive, if I did not inform those who are convinced of the vital Advantages of Inoculation, (but who are very piously consistent in rejecting it, while they conceive it dangerous to their eternal Life and Welfare) of my Reasons for this Opinion. These in Truth, as far as I can penetrate into my own Heart, were not originally founded in any pecuniary Consequences I might propose from it (tho' I never affected to disclaim any just ones) but in an immediate Anxiety for the Life of my own Children; and, after an interesting Demonstration of its Success in them,

for

for the Security of every Subject of the Small Pocks, throughout the extended Family of Mankind. For this Purpose I have here converted the Preface of the former Edition, (having also some Reasons for prefixing a new one) into the concluding Section of this.

The earliest theological Combatant against Inoculation certainly set out with more Zeal than Knowledge, when, without debating about the Antiquity of the Small Pocks, he came to the Matter at once, and roundly affirmed, the Devil inoculated *Job* with it. “ He supposes * his
 “ Disease that Confluence of inflammatory Pus-
 “ tules, which, he observes, is now incident to
 “ most Men ; that it might be conveyed to him
 “ by some such Way as that of Inoculation ;” and concludes, “ that he does not see what can be
 “ advanced to invalidate this Supposition.” His calling it a diabolical Operation, the Operators diabolical, *Venefici*, and their Patients Atheists, &c. &c. &c. are necessary Consequences of his first Assertion. A very prudent Man would certainly have attended impartially to the general Fruits of the Practice, and have informed himself more exactly about its different Properties than the Rev. Mr. MASSEY did, before he pronounced so peremptorily concerning it. That his Intelligence of it was merely crude and popular is evident, from his affirming it no Security against a second Infection ; and his ascribing the Practice of it to the *Turks*, for this extraordinary Reason

* See MASSEY's Sermon, P. 6.

Reason too, because they are Fatalists ; when our earliest Accounts of it from *Constantinople* tell us, “ it was practised by the *Greeks*, and among themselves and the *Armenians*, who are Christians ; and that the *Turks*, as Fatalists, rejected it,” which happens to be a little more intelligible than their receiving it, as such. But Absurdities, like Misfortunes, seldom come alone. There is little Doubt however, but some of his Hearers, and Readers, really concluded the Devil had inoculated *Job* ; the Consequence of which Conclusion may be easily surmized, at a Time when the Practice was quite new here, the Prejudices against it greater, and the Evidence in its Favour much less, than at present.

Notwithstanding which present Evidence, a Dissuasive against Inoculation was printed here, 1751 ; and a Sermon against it preached at *Canterbury*, 1753, was also printed, without either having been publickly * animadverted on that I have heard of : For my own Part I may with great Truth aver, I can discern no just Argument, no Force, in the Objections they contain ; so that the vital Security of such, as might mistake their Affirmations for Arguments, and their Misrepresentations for Facts, is the real Motive of my endeavouring to expose their Futility and Impertinence.

The Sermon affirms literally, P. 8, 9. “ It will be hard to produce out of the huge System of
C c c “ hurtful

* This Sheet was at Press, before Mr. *Bolaine*'s reasonable Answer to this Sermon was published.

“ *hurtful* Inventions ever an Instance big with
 “ *more* Infidelity and Atheism, than this of Ino-
 “ culation.” This is the old Device of mixing
 Heaven and Earth, and indeed Hell too, in the
 Quarrel; and to cite it appears its sufficient Re-
 futation. Since, to omit the Importance and
 Number of the Inoculated, had the Author spent
 a few Minutes’ Reflection on the religious and
 moral Characters of many who have been ino-
 culated themselves, or employed it in their Fa-
 milies; and who have further promoted the
 Practice from the most generous and disinterested
 Motives; any State of Mind, short of utter
 Malignity or Distraction, must have prevented
 him from passing, in so solemn a Situation, so
 truly unchristian a Censure on Numbers, who
 are fully as remote from Infidelity and Atheism
 as himself; and who have evidenced at least
 equal Faculties to distinguish what are, and are
 not, such. This is *Anathema, Maranatha*, with
 a Witness; and not unlike Lord *Peter’s* plain Ar-
 gument in Defence of Transubstantiation. As it
 necessarily arraigns me, among much better Com-
 pany, with the Practice of Infidelity and Atheism,
 I must aver I consider it in a very opposite Light,
 without which I had never practised nor promoted
 it. Many, to my certain Knowledge, admit, and
 others apply it, under a lively Dependence, that
 they are using a Method discovered by Provi-
 dence, for a much more general Preservation
 from the Mortality of the Small Pocks, than
 mere Art ever did, or probably ever will, effect
 in

in that, or in any other Disease of equal Fatality. The generally mild Progress and happy Event of it conspire with Religion and Reason, to excite the Gratitude and Devotion of the Patient and the Beholders, and induce the revering and honest Physician to exclaim with *Iäpis* in *Virgil*,

*Non haec humanis opibus, non arte magistra,
Proveniunt. —*

Indeed could human Penetration in this Life survey and estimate the Scenes of Futurity, it seems more probable than otherwise, that our strong Solicitude for a long Inhabitation of the present would sensibly diminish; whence all Remedies, except those against present acute Pain, would be less attended to. But His supreme Wisdom, who has limited our Knowledge here, tho' not our Hopes, to this Planet, having willed our Residence on it for a Term unknown to us, has most benignly implanted that ardent Desire of Length of Days in us, that makes our Duty, our Obedience to his Will, in this one Respect at least, the strongest Passion in our Nature. *All a Man has will he give for his Life.* What Wonder then that he should embrace the fairest Chance for the Continuance of it? Can it therefore be consistently inferred, that our Exertion of this Self-preservation against the Pain and Mortality of an acute Disease is irreligious and derogatory to the Honour of God? Or can any one suppose Him incensed with us, in such a Situation,

tion, for an Adherence to that Impression He has so deeply stamp'd into our Essence ; that when Persons, in Violation of it, become Suicides, we suppose them under an utter Eclipse of the reasonable Soul ? And if this be Madness, is not the Reverse consistent with a Sanity of the Mind, and an Obedience to that earliest Impression of the Creator ?

But with what still greater Perversity must others ascribe a vital Discovery, that has never been traced up to its first human Instrument, to the Spirit of Malignity and Falshood ! Has that evil Principle, whom the Scripture terms *a Murderer from the Beginning*, so altered his Nature, as to become beneficent to Men ! And does the wonted *Giver of all good Gifts*, the Inspirer of all useful Knowledge, but shew this efficacious Practice to tantalize, or insnare, wretched Mortals ? Or if it really were the tempting Device of Satan, will He, who has declared himself a *jealous God*, and *in whose Hands are the Issues of Life*, suffer this Device to triumph so manifestly over that Disease, which has sometimes been ascribed, with others, to his immediate and judicial Infliction ? Doth He, who came *to save, and not to destroy*, and who bids us *judge of every Tree by its Fruits* (which seems unstrainedly applicable to Practices and Customs as well as Men) deem us culpable for attending to, and being determined by, the very general Fruits of a Practice, so incontestably favourable to Life ?

At the same Time it is readily allowed, that
Self-

Self-Preservation may and ought laudably to be postponed, whenever our Duty to God, to our Country, our Friend, or Neighbour, demands the Risque, and even Loss of the present Life, which is not a Loss of Existence, but a different Mode, or Locality, of it; and which, when thus dutifully and nobly exchanged, under an humbling Sense of our manifold Infirmities, may so probably be a Change for the better. But exposing our Lives to a Distemper, which, accidentally taken, destroys, upon a fair Calculation, full fifteen (and suppose it were much less) for one that fails by this Application of it, cannot appear to any Person, of an unwarped Understanding, a Duty in any of these Regards; where our Death can answer no evident good Purpose, tho' it may sensibly affect, or even prejudice others. *In the Grave none can praise God, and the Deceased are lost to every sublunary Duty and Relation.* As to the Impiety that has been suggested in attempting to elude or soften this Scourge of the Almighty; tho' we do not contest, but that He may sometimes inflict this morbid Visitation, as the Scriptures inform us He has done others (for who shall enter into his Counsels!) yet it seems highly rational, and no ways irreligious, to infer, that in the ordinary Course of his Providence he leaves secondary Causes to their necessary Operation and Effects. Whether we survive to the utmost Term, we were formed to exist in this State, or abridge it through our own Folly or Intemperance, by Accident or Contagion;

gion; the Creating Cause, pre-conscious of the full and ultimate Completion of his wise and gracious Purposes in our Creation, most probably commits intermediate Events, that appear very important to our narrow Comprehension, to the Vicegerency of Nature ; and

— *sees with equal Eye, as God of all,
A Hero perish, or a Sparrow fall.*

Yet, as with Regard to our future State, He hath set Life and Death, Good and Evil before us, to select, as free and rational Agents ; so, with Respect to the present Disease, He has manifestly permitted us to see the Evidences of two different Modes and Events of receiving it, and freely left us (as I apprehend for my own Part, with the utmost Reverence and Gratitude) to make our reasonable, and even religious, Option. For such then, as cannot avoid considering Inoculation in this Light, it is surely religiously lawful at least, if not incumbent, to receive and apply it : while they leave those who conceive or embrace very opposite Sentiments of it, to enjoy unblamed (and even with an Approbation of their Sincerity and Consistence in abstaining from it) that Liberty of pursuing the Dictates of their Conscience, which the Friends of Inoculation think they have a reciprocal Right of doing unimpeached.

But this they are not permitted to do ; *they are reviled, tho' they revile not* ; and while they consider
their

their Antagonists only as mistaken, they are charged with Impiety, Infidelity, and Atheism, in practising or admitting what has been termed, contrary to all Probability, a diabolical Invention. Now Persons who erect themselves into such censorial Importance ; who are so ready to tax the Conduct of their * Superiors ; and are so liberally indued with the cheap and humble Rhetoric of calling Names, ought to have a truly rational Conviction, that when they call Persons and Practices by such bitter ones, they are not mis-calling them, by those essentially opposite to their true Nature and Characters. Were Truth on their Side, would this be *contending for it in the Spirit of Meekness*, which indeed so frequently accompanies it ? But, as the plain Evidence of innumerable Facts are against them, has it not a much stronger Appearance of persisting obstinately against the Truth, with the Spirit of Bitterness and Execration ? We say *Appearance*, because, as He alone who made the Heart can judge of it, we chuse to credit this Writer with a religious Zeal for what he thinks the Truth on this Occasion ; for if we do not allow his Discourse this intentional Merit, we can certainly allow it none. But a blind Zeal, tho' *called religious*, if it may have destroyed fewer than Ambition, has destroyed them more cruelly. Those violent Spirits, who, within a few Centuries past, committed Numbers to the Flames here, for their conscientious Adherence to plain Christian Truths ; and influenced the like Cruelty on the

* See Sermon, P. 5.

the Continent, to the Destruction of many Thousands, had sufficient Zeal, such as it was, to plead for it. Indeed without this they must have been greater Monsters than *Nero* himself, who, we have never heard, pleaded a Commission, even from his Pagan Deities, for acting like a Devil incarnate. How much more probably and amiably does the good Archbishop TILLOTSON suppose Charity the Criterion of Truth in a religious System ! For, however we may be misled by Names, all Zeal, that is really cruel and uncharitable, is *essentially irreligious*. We do not intend here to form a Comparison between the Opponents of Inoculation and the bloody Anti-Reformers ; but to evince the unwarrantable Lengths of a blind intemperate Zeal, which has most generally been employed in the Support of Error too. Neither are we disposed to retort the *Devilism*, the Anti-Inoculators have ascribed to us, on themselves, tho' surely it might be done with at least equal Justice ; since next to destroying Life seems to be preventing an Interposition to save it.

But what Principle, what Zeal, can warrant such a gross Misrepresentation of Facts, such plain Falshoods, as this Author allows himself in ! To give a few Instances out of many, he says, P. 20 ;
 “ that Inoculation secures us against no one Dan-
 “ ger we are in the natural Way exposed to ;
 “ affords no one real Advantage that may not be
 “ had in the common Management of the Dis-
 “ ease ; and is subject to many Inconveniences and
 “ Evils,

“ Evils, which, in the regular Course of Things,
 “ we are either quite free from, or but slightly af-
 “ fected with.” P. 21, 22, “ It may be main-
 “ tained that Adults, if naturally of a *good Consti-*
 “ *tution*, and such as have not impaired *that Con-*
 “ *stitution*, or are not at the Time under any
 “ bodily Indisposition occasioned by Intempe-
 “ rance or other Vices, have as good a Chance
 “ for their Life in the *natural*, as Children have
 “ in the *unnatural* Way, and perhaps a *better*,
 “ &c.” P. 23, “ As to the *Cure* which Inocu-
 “ lation furnishes for those *Fears* Persons are apt
 “ to lie under till they have gone thro’ the Trial;
 “ and the *Certainty* of the Disease proving in this
 “ Way *less severe and less mortal*; these, tho’
 “ urged as *singular* Recommendations of this
 “ Practice, seem however to be no better than
 “ *mere Pretences*.” P. 26, “ There is then most
 “ evidently no one *peculiar, real* Advantage
 “ gained by submitting to this *deceitful* Trial;
 “ nor any the *least* Security against the Dangers
 “ incident to the Distemper in the *natural* Way.”

It is superfluous to give any Answer to such gross
 Mistakes, or worse. But we may well query, if
 the Preacher reflected *where* he said them? and
 who advised, or rather *sentenced*, him to publish
 them? Yet, to make the Practice some Amends
 for the hard Words he has given it, he has oppo-
 sed it with very tender Arguments. His compa-
 ring the Admission of * Inoculation to a Man’s
 consenting to have his Legs broke, by way of

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* Serm. P. 24, 25.

preventing any subsequent Fractures of them, which he calls a parallel Case, is such a parallel indeed, as would not have occurred to every Body ; and is nearly as ingenious as Mr. MASSEY's ascribing the Longævity of the Antediluvians to their Physicians' profounder Knowledge of Minerals and Vegetables. Such pretty Conceits, however, are sufficient to gauge the Depth of the Fountains they spring from.

The anonymous Author of *A Dissuasive against inoculating for the Small Pocks* is a more reserved, and, at the first Appearance, a more temperate Writer. His having some Elegance and Address, and his supposing the general Success of Inoculation, which he is too prudent to dispute, have a Tendency to insinuate him into such Company, as could not digest the gross Contradictions, and coarse Dialect, of the Sermon. His theological Arguments against it, however, are pretty much the same ; it being founded, according to his Creed, in Presumption, Turpitude, Malignity, and even Idolatry. But surely the hunted Hare, he gives so lively a Description of from a *Latin* Poet, is not reduced to more Shifts than this artful Writer is, in endeavouring to enforce such Asseverations by any just Arguments. There is a great deal of Scripture quoted on the Occasion, which wants nothing but a right Application. Thus, for his Mottos to the *Parallel between Divine Resignation and Inoculation* (and Mottos are generally selected for being very pat and significant) he has chosen the following Texts, *viz.*
“ He

“ *He that loveth Father or Mother more than me, is not worthy of me ; and he that loveth Son or Daughter more than me, is not worthy of me. — He that findeth his Life shall lose it, and he that loseth his Life for my Sake shall find it. — Speaking the Truth in Love.*”

Now who disputes the Truth and Significance of the two former, on the Occasion they were uttered by our Saviour ? the first of them declaring the Right which all had to embrace the Gospel and become his Disciples, notwithstanding the Opposition of their nearest Relations ; to whom they owed, in all lawful Respects, an entire Obedience, and very great Affection : as the latter seems prophetic of the ensuing Persecution, and even Martyrdom, of some of the earliest Champions of Christianity, to whom I think they were addressed, and were exhortatory to their Perseverance, in Defiance of it. But what possible Reference have they to Inoculation ? If they could have any, an unprejudiced Reader would be apt to infer, there must have been some direct and positive Text against it in Scripture : or, as the Novelty of the Distemper and the Practice must prevent such an Anachronism, such an Error in Time and Date, he might suppose there was as positive a Commandment, not to attempt to save, as, not to kill. As to the last Text, *viz. — Speaking the Truth in Love*, which the Writer may have intended to apply to the Scope and Spirit of his Performance, how reconcileable is this emphatical *Love* with his

———— — *careat successibus opto*

Quisquis ab eventu facta notanda putat.

Which, in plain Prose, expresses his pious Aspirations, that whosoever takes the Character of Actions from their Events, and repeats them from their former Success, may find himself disappointed ! Now as nothing but the successful Events of Inoculation could recommend the Use of it, this fairly extends the Author's *good* Wishes to the Disappointment, or Death, of any one who shall be inoculated, from judging of it by its Event, which is the Case of all who are inoculated. Can Inoculation possibly have its Origin in so much Turpitude and Malignity, as this Professor of Love has manifested in this *Latin* Fragment ? which he prudently declined putting into such plain *English*, as we have done for him. His Application is general, and, not to include the Inoculated within the Amplitude of his good Wishes, he must have expressly excepted them. Besides that either Turpitude or Malignity is much such an Origin or Cause of Inoculation, as *Tenterden* Steeple was of *Goodwin* Sands. Now Persons who thus bewilder themselves and others in the Mazes of Sophistry and Darkneſs ; and are at some Pains to avoid the serene Expanse of Reason and Sunshine, may be more justly considered, as *eluding the Truth out of Prejudice*, than as *speaking it in Love*. Indeed the plain Case is, that the former Texts are wrested, like many others, by the Anti-Inoculators against the Practice, to infer it malign, and distrusting Providence : when the

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Subjects of Inoculation manifestly resign themselves as entirely to the Disposition of Providence, in selecting the safest Way it has shewn of submitting to this Disease, as the others, in waiting for the most perilous : which the former sincerely think, Religion does not require of them, and which their Reason disapproves.

For my own Part, the more I see and revolve on this Practice, the Opinion of its providential Origin becomes more deeply rooted in me. Methinks, if the revering and sagacious *Hippocrates*, who suggested the Divinity of a Disease, had seen this, and this Method, he must have inferred the Divinity of the Remedy too. The Candour of *Sydenham* must have acknowledged the Efficacy of his salutary attempering *Regimen* amazingly surpassed. *Boerhaave*, who lived to approve this Method, had contemplated how to resist the Disease by some Antidote ; or to discharge or extinguish it by an anti-inflammatory depressing Process. Indeed the common and rational Purpose of this great medical Triumvirate was to mitigate and subdue Diseases, by a judicious Subcontrariety of Remedies to the Nature of their Causes : and those, who have done otherwise, have generally done Mischief. But untill I heard of Inoculation, I never heard, read, nor could have supposed, that a direct Application of the contagious Cause of a Disease to the Blood it particularly infects, was the very surest Prevention of its mortal Effects ! And thus *Pylarini* tells us, that the *Greek* Woman he found practising it had

no Sort of Notion why it gave the Small Pocks ; but attributed both the Practice and Success of it to the Goodness of Heaven : the most obvious and natural Inference that could occur to a plain uncorrupted Apprehension, when she saw such a manifest Difference between the Consequence of it, and of common Infection. In short, we shall run little Hazard of misapplying Scripture more for Inoculation, than its Opponents have done against it, if we say, after reflecting on this effectual, most salutary, and paradoxical Coalition of the Cause and its Cure, *His Ways are not like our Ways* ; and then conclude, with the Psalmist, *This is the Lord's doing, and it is marvellous in our Eyes.*

Nor will our few comparative Miscarriages in this Way considerably militate against this Conclusion. Had no one ever failed under it, few or none, scarcely a *Turk* perhaps, had opposed it by this Time ; and thus becoming a Matter of Certainty, there had been no Room for Faith or Resignation in admitting it ; which indeed might have led some into too high a Conception of their Independency in this Respect. The Losses we see by it, under the best Regulation, are no more than seem sufficient to remind us of the ultimate Dependance of the Creature on the Creator in every State ; and to convince us of the Shallowness of our Insight, which cannot discern the few particular Subjects, whom the gentlest Mode and slightest Dose of this Poison, under the best human Caution, must destroy ; for *a few such*
very

very probably there are : and these few may prove more or less, in Proportion to the Mortality of the natural Disease at the same Time. But it is a clear Point with me, that no one dying by Inoculation could have naturally survived the common Infection, during the very same Season, and under strictly the same physical Circumstances, among which I include the Treatment of the Distemper. Briefly to express my whole Sense of this Practice, I have a conscientious Conviction, that the Use of it is religiously right for as many as think rightly about it: nor can I doubt that the Union of true Religion and Reason is much closer than Enthusiasm can perceive, or Infidelity will admit. Medically right I must affirm I know it to be; in Consequence of which I must think it politically so.

But whatever the further Reception of this Treatise may prove, I cannot be deprived of a happy Consciousness, that I have conducted myself throughout the whole of it, by as single and as abstracted a View to the Public Good, as I can conceive it in the Power of a weak frail Man to do. I have received no Assistance or Information, nor I think, scarcely a Hint on the Subject from any Person, Manuscript, or Book, which I have not, to the best of my Recollection, duly acknowledged, as in Justice and in Honour I ought. So that every Defect, Redundance and Error throughout all, that is not cited in the Treatise, are entirely my own; being such an unalienable Property as none will invade, none
can

can envy me. The best Apology I can make for a good deal of theoretical Reasoning in it is, that I think it generally points to a rational and salutary Practice. But however erroneous any of the Theory may prove, our great Happiness is, that the Facts are incontrovertible, and establish the Practice on the surest Foundation. Plain Events, as I have said in a former Essay, appeal to ordinary unlettered Sense: they speak an universal Language, challenge a direct Assent, and confound the most elaborate Trifling and Obstinacy.

It is too probable that, from the Drift and Nature of this Conclusion, I shall be censured as straying very weakly beyond the Bounds of my Profession, by many Readers who have been accustomed to suppose considerable Penetration and Learning (but more particularly in Physicians) as inconsistent with *revealed* Religion at least; even if they should admit them compatible with *any*. In such a false and pernicious Judgment, there is too much Reason to apprehend, several have been encouraged, by a few out of the many educated to the different Branches of healing; whose own Vices have made such an Opinion a flattering and temporary Opiate to themselves; and who have also found it more lucrative to sooth their Friends and Acquaintance in Libertinism and Dissipation, than to rectify their erroneous Judgment and Conduct; supposing such Men could *otherwise* be disposed to attempt it. Since a just Connection of truly religious, not fanatical, Sentiments, and a correspondently virtuous benevolent Tenour of Life, which
evidence

evidence the compleatest Sanity of the Mind, have also a direct Tendency to the Preservation of bodily Health. Now supposing a Physician to be a Person of good natural Capacity, with a thoughtful Turn of Mind, and to be well versed in the various Branches of Knowledge requisite to his Profession, (all of which it is of some public Importance he should be,) he must certainly prove as badly qualified for Scepticism, in its worst Sense, or the Irreverence of any Thing truly sacred, as I can conceive the best Theologist to be. The human Body with its Diseases, and every terrestrial System of Matter, being the Objects of physical Contemplation, all the Evidence of Nature is continually and irresistibly beaming on his Mind the Certainty of one Sovereign creating and preserving Cause of the Universe. The Acknowledgment of the Royal Prophet and Poet, that 'he was fearfully and wonderfully made', is a Reflection, that would naturally present itself to the most reasonable Mind, after an accurate anatomical Survey of the human Body. HIPPOCRATES, in treating of the Qualifications of a Physician, says, he * must necessarily be acted (*i. e.* in Consequence of his Observations) by a continual Reverence of the Gods: though he supposes him at the same Time free from † Superstition and Avarice. Nor is there much Im-

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probability

* Καὶ γὰρ μάλιστα ἡ περὶ θεῶν εἰδήσις ἐν νοῷ αὐτῆς ἐμπλέκεται. Ἐν γὰρ τοῖσι ἀλλοῖσι πάθει καὶ ἐν συμπτώμασιν εὕρισκεται πολλά πρὸς θεῶν ὀψιμῶς κείμενη ἡ ἱερική. Οἱ δὲ ἱερεῖς θεοῖσι παρακεχωρηκασιν. De elegantia.

† Ἀπερτολήσις, ἀφιλαργυρία, ἀδυσίδιαμονία. *ibid supra.*

probability in supposing so truly capable, so reflecting and attentive a Person (though he might not chuse to publish his Disbelief of the religious Mythology of his Country) to have been secretly as superior to Polytheism, as SOCRATES publicly was, and as PLATO, TULLY, and some other pagan Philosophers have reasonably been supposed. GALEN's Conversion and his Hymn in Consequence of it, are said to have been the Result of his anatomical Researches and Reflections.

With Regard to the ablest modern Physicians, as HARVEY, SYDENHAM, BOERHAAVE, FERNELIUS, and perhaps all who have left us any valuable Writings (to say nothing of our admirable English Philosophers,) they have been animated with the sublimest, the awfulest Notions of the Deity : and indeed it would be surprizing, if the many modern Discoveries in Physics did not dilate our Minds, and of Course exalt our Conceptions of the Wisdom and Power of GOD. But at the same Time that such perfect Conviction and Reverence accrued from the Investigations of these great Men ; they experienced so many Things still secret and inaccessible to their utmost Assiduity and Penetration, that it produced an unfeigned Self-Humiliation ; which, while it appeared to depress, really elevated them to that advantageous Pinacle of human Knowledge, the Knowledge of themselves. As many as have attained this difficult Height, have rarely been long bad, or essentially irreligious Men : though indeed considerable Faculties seem necessary

cessary to that justest Estimation of themselves, which immediately directs us to the Adoration of our divine uncreated Origin, that first Philosophy; in which Men of the greatest Genius and Science among us have so readily acquiesced, or rather exulted. It must be pleasing to every well disposed Mind to reflect, how considerably these out-number such Libertines of Genius and Learning among us, as have not been contented with endeavouring to make themselves and others easy in a licentious and exorbitant Gratification of their natural Appetites; (which are certainly entitled to their proper Objects within just Bounds) without exciting a senseless and impious Ridicule of those sacred Principles, that are necessary to the true Happiness of Society in its temporal State.

So thoroughly contemptible, upon the closest, the most interesting Reflections, are the Pretensions of Infidelity and Libertinism to that Superiority of Understanding they insolently arrogate. Their Professors abstracting Morality and Virtue from Religion (as some Sectaries would separate good Works and a right Faith,) is a Chimera, that fully exposes their superficial Consideration. Wherever the last is neglected, the former will necessarily become depraved; nor could the most virtuous pagan Nations have long preserved their Morals or their Reputation, without some religious System, though it were but a fabulous one, that apply'd to the Hopes and Fears of Mankind beyond the Duration of human Life. This evinces what indifferent Politicians, what pernicious

cious Citizens, the Propagators of Irreligion and Infidelity must prove ; when their Tenets, which disclaim eternal Happiness, sap also the temporal Security of each Community, which they labour, it is to be hoped very unthinkingly, to infect with them : since it is even for their own Advantage *here*, could they discern it, that this eternally interesting *Palladium* of Justice and Benevolence among Men should operate as long as *themselves* live, and that their Profelytes should be very few. Their egregious Secret should have been concealed as profoundly as the *Eleusinian* Mysteries : but in this Respect their Cunning has been weaker than their Vanity, which has left them the fewer to laugh at, by their too frequent Success in this execrable Employment. Their most profligate Admirers cling to them for the comfortable Hopes they receive of utter Annihilation : while their weakest Profelytes, unable to think, and sometimes perhaps merely conforming to a vile Fashion they have not Fortitude to resist, are flattered with a Supposition of their commencing Philosophers, and of their advancing in Time to an equal Profundity with their Teachers. There may be some undiscoverable Wit and Humour ; there must be some Cause of Titillation in their System, for the abundant Laugh and Festivity of such Gentlemen. But certainly there can be no Calculation, no common Sense, in risking the most remote Chance of a happy Eternity, for the malignant Joy of offending serious and revering Minds with Profaneness or Ribaldry,

Ribaldry, which even common Decency forbids ; nor in preferring the Applause of weak frothy Men, or loose Moralists, to the delightful Tranquillity of a good Conscience, and perhaps even to the divine Approbation and Favour.

Such, in my Opinion, being the intellectual Merit of this Rank of Critics, my Concern about their Strictures on this Conclusion may be easily estimated. As I avow my having revolved Inoculation in a religious and moral View, I offer the Reflections that have made me very easy in the Practice of it, as some Remedy against the erroneous Scruples of others. But though I have been assured they have succeeded sufficiently with some, to have occasioned the happy Inoculation of their Children, I gladly refer such as may justly remain not fully satisfied with them, and who understand *French*, to the *Essai Apologetique sur l'Inoculation de la petite Verole*, by the Reverend and truly ingenious Mr. CHAISE, Minister at the *Hague* ; who has considered the religious and moral Objections to this Practice in their utmost Force and Extent ; and answered them in such a satisfactory and conclusive Manner, that, although it may not silence all Cavillers, I think it must content every fair Disputant. It has strongly rivetted my early Satisfaction in this Practice, by affording me such further Arguments as I had not met with elsewhere ; and which did not occur to my own limited Reflexions on this Subject. Nothing certainly but very strong Prejudices of Education (except certain political ones may operate

rate at present in some *German* States against adopting any English Practice) could have continued a Physician of Dr. HAEN's Abilities (as such are candidly allowed him by the ingenious Dr. TYSSOT) a violent Opposer of the Method, after having read Mr. CHAISE's Apology. For as the Doctor prudently omits many former medical Objections to it; and as there is little Force in those he makes, it is easy to discern, where the Shoe pinches him. Had this Method been brought into *Europe* by any ecclesiastical Member of the Romish Communion, we should have had it incessantly obtruded upon us, as a miraculous Proof of the Incorruption and Infallibility of their Church. Had the Discovery been introduced by a Dominican, it had been urged to demonstrate the extraordinary Piety and Mercy of the Inquisition itself! In this Case perhaps we might, on the other Hand, have been deprived by some Zealots at home, of the Benefit of so early an Application of it in *England*; tho' Thanks to Providence, this is not our usual Way of reasoning here. The whole Apology is wrote with great Perspicuity, Force and Elegance: but such as wish rather for an Abstract of it, may read the strongest religious Objection against Inoculation fully enforced in the Words of an anonymous Writer to the Author on this Head, from P. 87, to 89; and the Author's Answer, from P. 89, to 101; which concludes his Apology in the Spirit of genuine Piety and Candour.

A P P E N -



A P P E N D I X.

N °. I.

A D

Virum spectatissimum eruditissimumq;
 * D. SENAC Regis Archiatrum.

QUando ea humanitate, quæ viris sapientissimis tam decora et familiaris est, me ad aulam excepisti, pauca quæ tibi dicere vellent subticui ; partim ob parvulum temporis quod mihi tunc restabat tecum colloquendi ; et partim ex defuetudine quadam elocutionis latinæ, quam tanta cum facilitate ac elegantia ore fundis. Nullus autem vereor quin pauca hæc urbanitas tua concedat mihi copiam per literas adjungendi ; dum pro candore tuo condonabis quicquid, a libris fere cunctis remotior, vel minus deliberatè sentiam, vel minus accuratè scripsero.

De excitatione variolarum per epispastica obiter tantummodo memoravi ad p. 157. libelli, quem accipiendo

* Vid. P. 197, 198.

accipiendo me devinctissimum habes. Quandoquidem enim in Anglia, et in Americæ parte Angliaca, semper expectavimus, atque, ut visum est, non immerito, aliquid commodi profluxurum esse inoculatis, per suppurationem incisionum laudabilem et satis copiosam, rarissime aut nunquam per vesicatoria morbum excitavimus: et si quandoque factum est, semper factum præ horrore puellæ vel infantis ad conspectum lanceolæ. Dom. Butini, medicus Genevensis, cum toto fere choro scriptorum de inoculatione, supponit incisiones, ut ita dicam, variolatas, quæ bene suppurantur, multum præsidii adferre inoculatis. Fateor me ipsum nunquam tentasse per vesicatoria infundere variolas, usque dum Lutetias advenirem, ubi applicavimus quatuor parvula vesicatoria ducbus ex quinque pueris et puellis, quos Dominus Dux de Rochefoucault curavit ut per artem inficerentur, tanquam totidem exempla commodi ex inoculatione proventuri. Ex imperfectis *excoriationibus* (quum cuticula tantum, et aliquando rete mucosum, non cutis per vesicatoria abraditur) puelli et puellæ vesicatorum, ne guttula quidem puris effluxit, sed exsudatio quædam serosa et valde modica. Et quæ aliter fieri potuit, quandoquidem ex massa sanguinea, non ex sero solum, pus efficitur. Puer et puella vesicati, unà cum duobus aliis pueris (quos, præter puellam fere octennem, præparavi et inoculavi gratis) in eodem cubiculo febricitabant; puer levissimè quidem, nam ad cubile, die durante, raro se recepit, et variolas perpaucas,

vix

vix cernendas, et nullatenus suppurantes, habuit. Certissimus sum me non potuisse ex illo extrahere vel minimam portuinculam succi variolosi, quo variolas impertirem. Omnibus his quatuor credo quod non erumpebant plus quàm quinquaginta pustulae; sanctè affirmare possum longe infra centum fuisse; et omnes cito quidem integerrime revalescebant. Qui vesicati erant fuerant juniores quàm pueri incisi, et pabulo varioloso certe minùs, et partim fortassis ea ipsa de causa, praegnant, quod paulo fufius innuebam analyseos p. 257, 258. Pueri incisi habuere a sex ad octo plures pustulas quàm puellula vesicata, sed bis saltem tot annos.

Novi qui imaginantur, quod plures variolae per incisiones quàm per vesicatoria excitantur. Non possum ipse non dissentire ab hac imaginatione; quoniam ut aliquis se praestet ab iteratis variolis immunem, necesse est ut totum morbi pabulum, quod, ad demonstrationem usque, continetur in sanguine et corpore humano, extra corpus individuum per pustulas, et per processum morbi, eliminetur. De regimine iccirco et de praeparatione pendebit, saltem ex parte, seges pustularum et symptomatum gradus; quanquam utraque varia erunt in diversis corporibus, etiam post appositissimas praeparationes. Si enim per erosionem vesicatoriam, et morbum exinde inductum, non omnis materia in sanguine, ut ita dicam, variolabilis, sed pars tantummodo expellitur; consequeretur, ut novo insultui variolarum quilibet per vesicantia infectus obnoxius esset, quod nec credo, nec spero.

Veruntamen ut me ingenuum praeſtem coram celeberrimo et ſplendidiffimo viro fatendum eſt, quòd ſuſpisor ſanguinem non tam plenè defaecandum iri per eroſiones, ubi ſolummodo aperiuntur extremitates glandularum aut vaſorum lymphaticorum, quae nihil puris effundunt, quàm per inciſiones, ubi vaſa capillaria, integro ſanguine gaudentia, inciduntur ; et quales inciſiones in cauteria, pus merum meracum fundentia, deſinunt. Ut videre enim eſt in libelli p. 42, 43, &c. ſuppono, in majoricopia inter rubros ſanguinis globulos, quàm inter lymphaticos, deliteſcere ſeminium morbi. Hinc in apparatu ejus non tantum levamen ſymptomatum percipitur per amplam ſeri evacuationem per meatus urinarios, quantum per haemorrhagiam e naribus modicam. Et quare pars veſicata quae nihil effundit puris, quod fit ex ſanguine, ſicut ipſae puſtulae, poſſit minuere ſubſecutivam eruptionem, plus quàm inciſiones, quae pus, de infecto ſanguine conſectum, ejiciunt, planè non video, et mihi abſonum rationi videtur. Interea tamen non penitus ignoro omnem meam inſcitiam ; abunde vincor, quod multa in humano ſyſtemate, et in naturae penetralibus, peracta ſunt, quae captum meum, et me multò capaciorum longe ſuperant. Sic demum de factis et exemplis haec quaefitio pendet, quae nondum hìc loci ſufficiunt ad certum quoddam axioma de re tali ſtabiliendum. Et ſi etiam ſufficerent, inveſtigatio veri ad aliquod tempus fortassis eluderetur, niſi omnes inoculatores fuerint viri aperto pectore, qui veritatem ſamae et auro anteponunt, et candorem verè Hippocraticum redolent,

redolent. Sic autem fatendum est, Vir probissime, nimis rari apparemus : nimium rari sunt qui et artem nôrunt, et sine artificiis eam exercent. Ex hac raritate autem tibi *Apotheosis* evenire potest, juxta Hippocratem, qui dicebat medicum philosophicum, quasi deo parem, *Ιατρός γὰρ Φιλόσοφος ἰσοθεός*.

Londinum per *Ostend*, Deo volente, citò rediturus, efficiam, si potero, apud Episcopum *Vorcestrensem* (cui nuper hac de re scripsi) ut plures eadem aetate, eodem temperamento, et, quantum conjectura assequi possumus, parili copia pabuli variolosi praegnantibus, iisdem planè medicamentis et regimine uterentur inter praeparandum : ita ut demum pars media inoculationi per incisionem subjicerentur, pars reliqua infectioni per vesicatoria : unde per talia experimenta, saepe repetenda, aliqualis conclusio fortè erui possit. Vereor autem ne maximus inoculationis per insertionem successus aliquomodo officiat ne impetrarem : aegre enim habeant commutare methodum per quam solummodo unus ex fere sexcentis naufragium fecit. In secunda editione libelli, fortè de hoc modo infectionis, quem audivi medicum hìc nuperrime notissimum, tanquam propriam suam inventionem, aliis venditasse, ulterius edisseram. Sanctè credo illum non eam methodum exercuisse, priusquam meum librum, in quo eam, perfunctoriè tantummodo descriptam, legisset ; nam legisse ex longo tempore novi.

Hanc, neque primam, Vir celeberrime, intrusionem, spero pro urbanitate tua te facillè con-

donaturum. Mire vellem infuper quod legeres cum candore philosophico paucas eas libelli partes, nam sunt perpaucae, quae manifestant auctorem diversa, licet christiana, fide; ex diverso, et quod dolendum est, hostili regno oriundum. In diversas regiones, religiones et partes, nolentes volentes quasi nati sumus. Proprio Regi, ut aequum et decorum est, fidelissimus, fidem mihi per literas conductorias gratiosissime imputatam nunquam violavi nec violabo. Non lineam, ne verbum quidem scripsi ad *Angliam*, neque ex ea recepi, quod civitati *Parisiensi* non tutò liceret evulgare. Regi, ac legibus regni, quod peragrarare concessum fuit, me habui, pro tempore, subjectum: sic me gessi, et, quantum me novi, non magis ex metu, quàm propter justitiam cum summa gratitudine et reverentia conjunctam. Haec in immensum excreverunt, ex quo inaequandas magnificentias et amoenitates *Versailiarum* videndi copia data est. Quando ipsum Regem, cum augustissima, illustrissima et amabilissima familia, intueri permissum fuit: et cum tandem maxima et imprimis gratiosa Regina, cum illustribus filiabus me coram conspiciere, imo etiam quadantenus compellare, non dedignatae sunt. Summa observantia, quam in *Galliis* et debeo et foveo, facit ut ad iter me accingam, antequam dies permissi ad imum defluerint. Tu verò interea, Vir spectatissime, et eruditissime vale! Salus, quam maximo regi tueris, tibi diu affulgeat; et digneris aliquando, per summum otium, meminisse celebritatis tuae
famae;

famae, et splendoris tui maximi muneris, cultorem
observantissimum,

J. KIRKPATRICK.

Ex aedibus Belleileanis, Junii

14^{mo}. 1756.

Not having, nor having applied for, Leave, to
print the Latin Answer this Gentleman honoured
me with, I decline the Liberty of publishing it
here; though I have extracted a Compliment
from it among the Citations referred to in the Pre-
face. The Reply to it, however, was as follows.

Vir dignissime,

L Iteras quibus me cohonestare non dedig-
natus es, summa, qua decuit, gratitu-
dine recepi. Et quandoquidem tua benignitas
mihi non abnuit honorem te rursus invisendi, invi-
sam, si potero intra tempus concessum, quod penè
effluxit: et hoc praecipue concilio, ut si forte li-
brum perlegisses, quem tanto candore com-
mendas, impetrare possim a tua sagacitate, eru-
ditione et experientia, designationem eorum quae
tibi aut erronea, aut deficientia, visa sunt: ex quo
inde limatior ac utilior editio subsequitiva prodeat.
Eodem tempore colloquendi dabitur occasio de iis
quae dixisti mecum agere tibi mens fuit; et de
quibus multùm vereor quod vix tibi satis tractatus
noster fecerat.

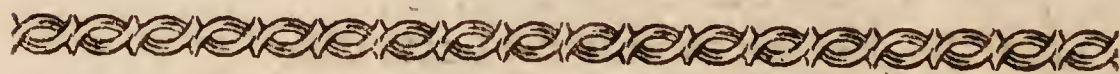
Haec equidem non scribo, Vir splendidissime,
quò tibi taedium, aut mihi novos honores, ex tua
rescriptione afferrem: quali etenim semel con-
tulisti abunde sum contentus. Scripsi verò, praeter
causas supra allatas, ut exhiberem animi gratitu-
dine

dine perciti testimonium ; utque profiterer, quod verè possum, me, alterius meritum longe supra meum, et cumulatissimis, ut fas est, honoribus ornatum, quàm sincerè colere et amare : praesertim quando mihi meisque conatibus vir meriti-
tissimus se favere non tantum profitetur, quinimo etiam commonstrat.

Si quicquid rei literariae tibi ex *Britanniis* per *Belgiam* redux, dummodo res ac tempora finant, afferre potero, honorificentissima mihi erunt tua mandata, quae, meo saltem obsequio, merebor. Tui interim animi in me propensionem benevolam gratissimus agnosco, et ambitione, sed non mala, amplector : novi enim quàm sedulo mihi cavendum est, ne unquam te patrocinii poeniteat cultoris tui, cum omnimoda observantia, addic-
tissimi,

J. KIRKPATRICK.

Parisiis, Junii 22^{do}. 1756.



N °. II.

Viro praenobili ac verè digno,

L. M. FOUQUET, COMITI de GISORS, &c. &c.

*In faustissimam ejus, annuente summo Numine, va-
riolarum Insitionem.*

SAepe * mihi recolo quam *Sequana* perfluit urbem,
Magnificam, celebrem, templa, vireta, vias ;
Versalias luxu regali auroque tumentes,
Delicias *Marli*, prata, fluenta, situm.

* Vide P. 198. & N *

Sed nulla aequae animum redeunti pascit imago,
 Dum varias vitae volvo viaeque vices,
 Ac quae, penè aequans benefacta ausumque GISORI,
 Officium et grates respicit apta meas.
 Usque colende mihi, procerum blandissime, totum
 Qui genus humanum, Marte sinente, colis ;
 Accipe, quaque soles morum dulcedine mira,
 Historiam haud fictam, dissimilemve tuae :
 Te nati illa legant quorum pars maxima clares,
 Quorum, te hortatus, pars, neque parva, fui.

Febris ALEXANDRUM, domito nondum orbe, repressit,
 Vim *Persae* audierant, non subiere, viri.
 Ars medicamen avet tutum, solennius ; ipse
 Forte citumque petens praetulit omne morae.
 † Decepti interea regem monuere tabellae,
 Quòd virtute minor, fraude opibusque potens,
 DARIUS multo medicum corruperat auro,
 Tendere lethifera certa venena manu.
 Versans multa animo mortem malebat alius
 Crimine, quàm turpi degener esse metu ;
 Displicet a cunis fido diffidere servo ;
 Jamque dies aderat quo medicata daret.
 Annuit ipse sibi calicem, medicoque tabellas,
 ‡ Siccat, et aspectans ora legentis obit :
 Protinus ictu oculi fallacia scripta recedunt ;
 Si quis vera filet, vix filet ipsa fides.
 Ex vultu ingenuo probitas nitet usque * Philippi,
 Pectora plena artis nescia fraudis erant.
 Tandem ingesta valent ex usu pharmaca docto,
 Rumores Heros spreverat, ille febrim.
 Debita sint priscis praeconia, neve tacendum,
 Si tam pulchrè ausum tempora nostra ferunt.

REGIA.

† Scil. Parmenionis.

‡ Quoad hanc circumstantiam conferantur

2. Curt : & Val. Max. cum *Arriano* et *Plutarcho*.

* *Alexandri Medici*.

REGIA quàm fulget late armipotentis, et hortus
 Cultior, irriguus fonte perennis aquae,
 Definit in sylvam, moderato lumine, gratam,
 Divisam in varias undique mille vias;
 Quàm Charites, quàm ludit Amor, peramoena locorum,
Sequana mirantes rite moratur aquas.
 Haec juxta oppositus, virtute et sanguine praestans,
 Unica BELLILIAE spes columenque domus,
 Quod || vitam patriae mallet quàm tradere morbo,
 Principia elegit mitificata mali;
 Quo non horridius Nymphis, nec atrocius ulli,
 Si cerebrum, pectus, ventriculumve petat;
 Cum malè dispositi, commoti aut sanguinis aestus
 Adjiciunt morbo spicula plura fero.
 Non nova nupta potens, illustri stemmate creta,
 Suaviter opponens foeda pericla mali:
 Non mille illecebrae linquendae, ac mille lepores,
 A luis amplexu detinuere virum.
 Nobile frustra itidem clamantque ignobile vulgus,
 ‘Hostili accensas audeat arte febres!’
 Non reputat fortis sapiensque ex more popelli,
 Cui plus cordis inest plus habet et fidēi.
 “Qui mores hominum multorum vidit et urbes” *
 Cernere quosque viros intuituque sapit.
 Fidens inde semel viso GISORUS, ab hoste
 Casu, re medico, vulnera amica finit:
 Nec renuente Deo, per quem feliciter arti
 Cesserat, ingenium non latuisse mali.
 Innuit Ipse imos bilis recludere fontes;
 Pellere quae nimia est; attenuare chymum;
 Ipse redundantem morbi subducere pastum;
 Cum laxare fibras, tum referare poros:
 Quo modice GISORS, justo post tempore, fervens,
 Contentus medico febreque dixit, ave!

Mox

¶ Vide P. 200, l. 3. 4. * Ex Horatio.

Mox roseae prodeunt maculae, serieque benigna
 Concoctae, turgent semina mira mali;
 Quae ficcata cadunt: acerrimus humor in auras
 Evolat, aut nondum corpora passa luem;
 His solis quia fomes inest, sine quo renovatas
 Haud unquam est veras cernere variolas;
 Quarum immunis agit Vir semper amabilis aevum,
 Strenuus in bello, pacis ubique decus.

Haec si pauca licet conferre recentia priscis,
 Magnanimumque ducem maximo in orbe duci:
 Si morbum accitum fas assimulare furori,
 Quo praevisa parùm febris anhela ruit.
 Si medicum lingua diversa, ex hoste petatum,
 Quis proprio aequiparans arte fideque parem,
 Seligat—illusttris viguit fiducia *Galli*
 Quam *Graeci* major, nec generosa minùs.
 Hic sibi subiecto confidit, at hic peregrino;
 Hic chari a puero, sperat hic hostis opem.
 Crediderat *Macedo* macedonica verba tenenti,
 Et Graiùm morbos, temperiemque suam.
 Praeposuit *Gallus* non gallica verba loquentem,
 Oppositis fuetum gentibus atque modis:
 Cautum verò acrem miti praevertere morbum,
 Aptaque in varios insinuare viros.
 Salvete Heröes! similes variique, ministris
 Quorum vestra salus secula fera dabit!
 Exitus acta probans medicum laudavit utrumque;
 Quid mirum servo Regis inesse fidem?
 Praestitit hanc etiam novus hostibus advena, grati
 Praesidio fretus, laetus amore Ducis.

J. K.

NUMB. III.

I Intended, in some proper Part of this Treatise, to have given the further History of Inoculation here to the Publick, or rather to the Continent ; who, notwithstanding their advancing Experience in it, consider this Island and its Metropolis as the Centre, where much the greatest Part of it is still transacted. This would have been the more consistent with my still professing the *History* of it in my Title Page. But as the continuing such an impartial one as I designed, depended on the Good-will, the Candour, and perhaps, in a few Instances, upon the Self-denial also of other Persons, I published the following Advertisement twice in some Evening Papers, full six Weeks before this Treatise was re-committed to the Press.

“ A new Edition of the *Analysis of Inoculation*, comprizing its *History*, Theory and Practice, (now nearly digested and corrected with Additions) being called for ; the Subscriber, in Order to render it more compleat and useful here and abroad, will deem himself greatly obliged to all physical Gentlemen of Integrity and Character, especially thote in the Country, for a summary and faithful Account of its Events, occurring within their own Experience for a few Years past, or even for the last and the present Year ; supposing such Gentlemen have no Intention of publishing

lishing them otherwise. He is sensible that, in desiring an Account of the Miscarriages by it, if any, he is addressing an abstracted and ingenuous Minority : but he shall not presume to publish any Gentleman's Name without his express Permission. At the same Time he thinks it but fair to advertise, that in Order to prevent the Work's swelling to a greater Bulk and Price than it can properly bear, he must reserve a Privilege of selecting such Accounts as shall appear the best attested, the most useful and important. Wherever a Frank shall be inconvenient to the Writer, the Postage of a Letter, directed to the Subscriber at George's Coffee-House, Temple-Bar, will be thankfully paid ; and the Obligation to his candid and worthy Correspondents be honourably acknowledged,

By their most obedient humble Servant,

J. KIRKPATRICK.

Essex-Street,

Feb. 15, 1761.

Had I received a single and material Information on repeating this Advertisement, I should have continued it ; but as I have not, from February to August, I hope my Readers will excuse what I have not been enabled to accomplish. I have more than once acknowledged the only Fatality occurring to me by this Method since my former Publication ; and I have mentioned a very few such successful Cases, as I thought contained any Thing new or instructive. The Advertisement I

have republished here, to induce Practitioners to keep some Account of their Patients Cases by Inoculation, which may sometimes be of Use to themselves ; whatever Indifference they may have about such Cases being of Service to any others.

I take this Opportunity of adding one important, and one very curious Information on this Subject, of which I was too late apprized, to insert them in their proper Sections.

The first is an Assurance from Dr. ARCHER, that out of about thirty three Subjects received into the Hospital for Inoculation, while they were kept in the proper Apartment, and preparing for it, eleven were seized with a Fever and other early variolous Symptoms, which terminated in the natural Small Pocks ; and out of which eleven, three died. Instances of the same Kind, he says, had formerly occurred to him, but never in so large a Proportion. This abundantly proves the Necessity of that Caution we have so often recommended and enforced ; that is, of keeping up the Subjects of Inoculation in *London* and in all constantly infected Places, a sufficient Term to assure us of their not having already received accidental Infection : for want of which Precaution the Subjects of this Practice may fatally suffer, and the Practice itself be very unjustly accused.

The second is an Account from Mr. GEORGE GIBBES, an eminent Practitioner at *Devizes, Wiltshire*, which assures me, ‘ that a Gentleman, whom he inoculated in the common Manner,

‘ ner, was seized at the proper Time with the
 ‘ usual Symptoms ; but upon taking, at his own
 ‘ Desire, a Dose of *Magnesia*, to keep his Body
 ‘ open, his Complaints abated, but were suc-
 ‘ ceeded by a *Diarrhœa*, which lasted two Days ;
 ‘ no kind of Eruption ever appearing, more than
 ‘ an inflammatory Rash over most Part of his Arm.
 He adds however, ‘ the Patient had reduced him-
 ‘ self to an Excess, both by Abstinence and Evacua-
 ‘ tions’, which Mr. GIBBES thinks, together with
 his Looseness, may sufficiently account for a Non-
 Eruption, as undoubtedly it may ; especially if
 we consider the Patient as naturally constituted
 rather for the milder Degrees of this Disease : But
 this Gentleman continues.—‘ After the Separa-
 ‘ tion of the Slough from the Incision, I made
 ‘ Use of some of the discharged *Pus* on a Boy
 ‘ about eight Years old, his Arm from the third
 ‘ Day inflamed, on the eighth he sickened, and a
 ‘ regular Small Pocks appeared to about the
 ‘ Number of twenty Pustules.’ This History will
 sufficiently confirm that we had given from Mr.
 WALL, p. 133 of the former Edition, which an-
 swers to 164, 165 of the present. It also suggests
 these practical Reflections, that Constitutions hap-
 pily disposed by Nature for this Disease, may be
 prepared too exquisitely to receive variolous Erup-
 tion by Art. And notwithstanding the effectual
 Communication of the Disease, by the Matter from
 their Incisions, may considerably assure them of
 their Security from a second Attack ; yet, upon
 a further Reflection, we cannot deny that a mode-
 rate

rate Eruption of the Inoculated would be still more satisfactory to ourselves : and this for Reasons which may be seen P. 158. from Line 2 to 10 of this Treatise. This Case seems also to point at the great Importance of an excellent Preparation, in the most suspected Habits for this Disease, as well as of a very slight one in the mildest ; and suggests the Possibility perhaps, of attaining so great a *Desideratum* in Practice, as that of bringing a Majority of the worst Subjects of the Small Pocks, into a State less susceptible of its mortal Consequences.





A GLOSSARY, or brief Explanation of such Terms of ART as unavoidably occur in this Work, and of a few other Words less commonly used.

A

Abdomen.—The Belly.

To *abrade*.—To shave, or rub, away, hence *abraded*, *Abrasion*, the Particles or small Parts so rubbed away.

Abscess.—A Tumour, or Swelling, containing Matter separated and discharged from the Blood or other Humours.

To *absorb*.—To suck or dry up; hence *Absorbents*, such Medicines as dry up four Humours, as Crabs Eyes, Oyster Shells, &c.

Accessory.—Additional.

Accretion, (growing up) viz. the Term of Accretion, the Time of our growing in Stature, &c.

To *accumulate*.—To heap up, or increase, hence *Accumulation*.

Acerb, (unripe) generally signifies such Substances as are both rough and sourish to the Taste; hence *Acerbity*.

Acescent.—Disposed to become, or turn sour.

Acid.—Sour; hence *Acidity*.

Acrid, (sharp) frequently applied to such Medicines as are violent in their Operation; to Poysons, or to such Humours in the Constitution, as are unwholesome and dangerous; hence *acrimonious*, *Acrimony*.

Adeps.—The Fat; hence, *adipose*.

Adherent.—Sticking, clinging to, hence *Adherence*, *Adhesion*.

Adult.—Grown up, of mature Age.

Æra.—Some remarkable Period of Time from which Historians reckon, as the Christian *Æra*, &c.

Aggregate.—Any Subject, or Substance, considered in the whole, altogether, or in the Lump, as we say: in which Respect it seems directly opposed to *Analysis*.

Agile.—Nimble, lively, active; hence *Agility*.

Aliment.—Nourishment; hence *alimentary*.

Alkali.—Any Substance opposed to acid ones; whether a meer *Ab-*
sorbent,

forbent, (which see) or such a saltish one as Potash, &c. which begets a great Effervescence or Conflict, on being mixed with an Acid.

Ambient.—Surrounding.

Anachronism.—An Error in Chronology, or Date.

Analogy.—A Way of arguing to illustrate Things less known, by such as are certain.

Analysis.—The dividing any Subject, or Substance, into all its compounding Points, or Parts, and giving a clear and distinct View of each. See *Aggregate*.

Angular.—Consisting of Angles or Corners.

Anthelminthic.—Destructive of Worms.

Anility.—To be rendered into one English Word, may be called Old-Womanship.

Anticipation.—A preventing, pre-occupying, or being before-hand.

AORTA.—The chief Artery (a Blood Vessel) of the Body, which receives the Blood directly from the Heart, and extends it through the arterial System.

APONEUROSIS.—A fine thin Membrane or Skin, supposed to be very nervous, and inclosing a Muscle, or fleshy Part, intended for some Motion.

Aporrhæas, invisible Particles rising, or steaming as it were, from different Bodies or Substances.

APPARATUS.—(a preparing) the Invasion or Attack of a Disease; the Furniture, or Preparation, necessary to any Operation.

Appetency.—Appetite, Desire.

Apposite.—Fit, proper, select.

Appulse.—The Force of Motion or Contact with which Bodies impress each other.

Aqueous.—Watery.

Arborescent.—Relating to Trees, to their Vegetation, or Growth.

To assimilate.—To render or make like; hence *Assimilation*.

Atoms.—The smallest, ultimate and indivisible Parts, compounding various Substances.

ATRABILIS.—Black Bile, or Gall, Choler.

To attenuate.—To render very small, thin or fine; hence *Attenuation*.

Attrition.—A wearing, rubbing, or grinding down.

Avolation.—A flying up, or flying off.

AURA.—A Vapour, Steam, or Air, whether contagious or otherwise.

Authentic.—Authorized, proved fully, admitted.

AXILLA.—The Armpit; hence *axillary* Artery, Glands, &c.

Basilary,

B

Basilary, (Artery,) so termed by some Anatomists, from its entering at the *Basis* or Bottom of the Skull.

Bifid.—Cloven, or divided into two Parts.

Biceps.—A particular Muscle, or fleshy Part, of the Arm.

Bolus, (a Morfel) it signifies the Size and Consistence of a Medicine to be taken at once.

Brachiceus Internus.—A particular Muscle, or fleshy Part, of the Arm.

Bulletines.—Written Answers to Messages sent to enquire the State of a Patient of high Quality in France, see P. 199.

C

Cachexy.—A bad Habit of Body; hence *cacheetic*.

Cacochymy, (bad Juices) a foul Blood; hence *cacochymic*.

Cæteris paribus.—All other Circumstances being equal.

Canals.—In a medical Sense, any hollow Tubes or Pipes, containing an animal Liquor, or Fluid.

Canine.—Doglike, relating to Dogs, as the *Canine Rabies*, the Madness of Dogs.

CANTHUS.—The Corner between the Nose and the Eye.

Capillary.—As small as a Hair, such as the capillary Vessels, tho' there are many much smaller throughout the Body.

CAPSULA, (a little Case) a small Receptacle for some secreted Humour.

CARIES.—Rotteness, particularly of the Bones.

CAROTIDES.—Large Blood Vessels ascending to the Head and Face.

CATAMENIA.—The monthly Discharges.

Catarrh.—A Defluxion, or Cold, distilling in Rheum from the Head.

CATASTROPHE.—The final Event of a Disease.

CAVA.—The largest Vein in the Body, which returns the Blood to the Heart.

Caustic.—A corroding, eating, or burning Application.

CHLOROSIS.—The Green Sicknefs.

CHOROIDES.—One Membrane, or Coat of the Eye.

Chronical.—Of long standing, inveterate.

Chyle.—The white Liquor, made from our Food in the Stomach and Bowels, before its Mixture with the Blood; hence *Chylification*, the Faculty of making Chyle.

Citations.—Passages acknowledged to be taken from other Authors.

Coalition.—Union, Junction, thorough Mixture.

Coercive.—That which compells, or forces.

Coeval.—Of the same Age.

Coherent.—Touching, or very nearly sticking together ; hence *Coherence*, *Cohesion*.

To collapse.—To close so, as that one Side touches the other ; hence *Collapsion*.

To colligate.—To dissolve, to melt ; hence *Colligation*, *colligative*.

Comatose.—Sleepy, Lethargic.

Compact-Adj.—Close, solid ; hence *Compactness*, &c.

Complex.—Compound, not simple.

To comminute.—To lessen, to grind, to reduce into small Parts ; hence *Comminution*.

Concomitant.—Accompanying, joined with.

To concrete.—To coalesce, or grow into one Mass ; hence *Concretion*, &c.

Confluent.—That flows into, or runs together ; hence *Confluence*.

Congenerate.—Begot together, at the same Time.

Connate.—Born together with, at the same Time.

Constipating.—Astringent, binding.

Contemporary, or *Cotemporary*, existing at the same Time.

Contiguous.—Adjacent, touching, or nearly so, hence *Contiguity*.

Contingent.—Accidental, fortuitous ; hence *Contingence*.

Contractile.—Having a Power of shortening itself.

Convolutèd.—Circling, twisted, wound about.

Corpuscles.—Very small Bodies, or Parts of Matter. See *Atoms*.

Cortical.—relating to the Bark, or outside, as, the cortical Substance of the Brain.

Crambe centies costa, p. 65. boiling the Cale to a Poultis, spoken of any needless and tiresome Repetition.

CRASIS.—Temperament, Constitution, Mixture or Consistence.

CRASSAMENTUM.—The red and more solid Part of the Blood, in a concrete State.

CRISIS.—The Time, or the Evacuation, that proves the Turn of the Disease, and often serves to judge of its Event ; hence *critical*.

CRITERION.—A Touchstone, or Tryal.

CRUOR.—The red dense Part of the Blood, but rather before it is separated and concrete.

CUTIS.—The true Skin, hence *Cuticular* ; and *Caticle*, the scarf Skin.

D

DEbility.—Weakness, Feebleness ; hence to *debilitate*, &c.

Decumbiture.—The Time of lying down Sick ; hence *Decumbent*.

Defœcation.—A clearing from the Dregs, a making fine or pure.

Defi-

- Defiguration.*—A Description, or representation in Words.
Deflagration.—A setting Fire to, with some Purpose and Intention.
Deglutition.—The Action of swallowing.
Deleterious.—Of violent Operation, poisonous, deadly.
Dense.—Close, solid ; hence *Density*.
Dentition.—The Act, or Time, of cutting Teeth.
Denuded.—Stript naked.
Depletion.—Emptying.
Depression.—Pressing down, sinking, lowering.
To depurate.—To cleanse from the Dregs ; hence *Depuration*.
 See *Defæcation*.
Desideratum.—An undiscovered, but much desired Improvement in any Art or Science.
Despumation.—The Act of purifying by removing the Scum or Foam.
To detrude.—To thrust down lower ; hence *Detrusion*.
Detumescence.—The Sinking or Abatement of a Swelling.
Diffusion.—A spreading forth, or wide about.
DISPENDIUM.—Expence, Waste, Loss.
To diversify.—To make different, to vary.
Dormancy.—A State of Inaction.
Ducts.—Small Pipes or Passages through which a Fluid is conveyed, or separated.
DUODENUM.—The Gut immediately joining to the lower Orifice of the Stomach.
Dyscrasy.—A distempered unequal Mixture of any of the animal Fluids.

E

- E Contra.*—On the other Hand.
To efface.—To destroy, or blot out.
Effervescence.—The becoming hot by intestine, or inward Motion.
EFFLUVIA.—The small Particles continually flying off from Bodies..
Effete.—Worn out, barren, inactive.
To elaborate.—To produce and finish with Labour and Accuracy ; hence *elaborated*, &c.
Elastic.—Springy, the Power of recovering the Shape from which it was forced.
ELEPHANTIASIS.—A Species of Leprosy, in which the Limbs are supposed to appear clumsy, rough and shapeless, somewhat resembling an Elephant's.
Eligible.—Fit to be chosen, preferable.
EMBRYO.—The Offspring in the Womb, while yet forming and unfinished.
Emetic.—Causing vomiting.

Emigration.—A Change of Habitation.

Emolument.—Profit, Advantage.

Empyreumatic.—Being in the State of burned Substances.

Endemic.—A Disease peculiar to a Country or People.

Energy.—Force, Vigour, Influence; hence *energetic*, &c.

Epidemic.—Seizing many Persons at the same Time and Place.

Epispastic.—Drawing, blistering.

To *equiponderate*.—To weigh equally with, to counterbalance, or be equivalent.

To *eradicate*.—To root out; hence *Eradication*.

Erratic.—Wandering, unfixed.

Eruptive.—Breaking out.

Erysipelatous.—Resembling, or relating to St. Anthony's Fire.

Esculent. Eatable, fit for Food.

Etymology.—The Descent and Derivation, or, as it were, the true Source and Reason of any Word.

Evanescent.—Vanishing, unperceivable.

Evaporable.—Which may be dissipated, or consumed in Fume or Vapour.

Euge bone et fidelis!—Well done thou good and faithful Servant!

To *evince*.—To prove beyond Dispute.

Eulogy.—Commendation, Applause.

Evolution.—The State of being further unrolled, unfolded, or extended.

Eupeptic.—Easy of Digestion.

Excoriation.—Loss of Skin, flaying, blistering.

Excretory.—An Epithet joined to Animal Pipes or Parts assigned to the separating and expelling Superfluities.

Exhaling.—Sending out Vapours.

To *exhibit*.—To shew, give, or administer; hence *Exhibition*.

Exility.—Extreme, and evanescent Smallness.

Extravasated.—Being forced out of the proper Vessels, out of the Circulation.

To *Exude*.—To sweat, or ooze out.

Ex nihilo nihil fit.—Nothing produces nothing.

F

Fascinating.—Bewitching.

FAUCES.—The Inside of the Jaws and Mouth.

Febrile.—Feverish.

Feculent.—Having Dregs, foul, impure.

Fibre.—An animal Thread or String, whether fleshy or membranous, &c. hence *Fibrills*, *fibrous*.

Figuratum.—In Figures, or numeral Types.

Fissure.—A Cleft, a Slit.

Flatu.

Flatulent.—Causing Wind, windy; from *Flatus*, Wind.

Fluids.—Liquids of any Sort.

FOETOR.—A Stink, any ill Smell.

FOETUS.—The Child in the Womb, when entirely formed.

FOMES.—The Fuel, Nourishment, or Matter of a Disease.

A fortiori.—For a still stronger Reason.

Fortuitous.—Accidental; whence *fortuitously*.

To frustrate.—To defeat, to disappoint.

To fuse.—To melt, dissolve, or be dissolved; whence *Fusion*.

G

GELatinous.—Of the Consistence of a Gelly.

Genèrable.—That may be produced or begotten.

Genuine.—Real, not adulterated or spurious.

To germinate.—To sprout, bud, or shoot.

Glands.—Vulgarly called Kernels, when swelling in the Neck, &c. certain smooth and solid Parts, tho' containing Pipes for secreting some Fluid from the Blood.

Globules.—Generally apply'd to the red Particles of the Blood, which appear globular or round through the Microscope.

Graveolent.—Strong-smelling, as Garlick, Rue, &c.

H

HÆmorrhage.—A flowing of Blood from any Part.

To hesitate.—To doubt; hence *Hesitation*.

Heterogeneous.—Of another, a different Kind.

Hic labor, hoc opus est.—This is the Tryal, the Difficulty.

Homogeneous.—Of a like Kind, Substance, or Nature.

Humectation.—A Moistening.

Hypothesis.—A System supposed, not proved.

I

IDEA.—A Form, or Notion, conceived by the Imagination: hence *ideal*, imaginative.

To imbibe.—To drink, or suck in: hence *Imbiber*, the Person sucking in and swallowing Infection with his Spittle.

Imminent.—Near at Hand, impending.

To immitt.—To send in.

Impermeable.—Impassable.

Imponderable.—Too light or subtil to be weighed.

Impressible.—That which may be impressed upon, or affected.

Incident.—Liable, casual.

INCOGNITA.—Things unknown.

Incras-

- Incrassation*.—A growing thick.
Incubation. (a lying upon) a hatching.
Indelible.—Not to be blotted out, or effaced.
Ineffete.—Not worn out, vigorous.
Infarction.—A stuffing up, or Obstruction.
Inflation.—A blowing up, or swelling from Wind.
Ingurgitation.—A Swilling; or swallowing a great Quantity of any Liquids.
Inherent.—Existing inwardly, inborn.
Inodoration.—Infection by Smell.
Inquiescent.—Restless, continually moved.
Insalutary.—Unwholesome.
Inscrutable.—Unsearchable, indiscoverable.
Insolation.—A long Exposure to the Sun.
To insorb.—To suck, or swallow in.
To inspissate.—To make thick, or stiff.
Instillation.—Pouring in by Drops.
Integuments. (Coverings)—The Skin, Cuticle, &c.
Intense.—Vehement.
Intervention.—A coming between, or Interposition.
Intestines.—The Gutts.
Intuitive.—Discerning or discovering at once, without Reasoning or Deduction.
Invelopements.—See *Integuments*.
To investigate, &c. to trace, to discover; hence *Investigation*.
To involve.—To roul within, or contain.
Irrational.—Without Reason.
Irrefragable.—That cannot be confuted.
Irritation.—Sensation attended with Pain; hence *irritable*, *irritating*. See *Stimulus*.
Jugulars.—Certain Veins of the Neck.

L

- L** *Lacteals*.—Vessels conveying the Chyle made in the Bowels into others, which convey it into the Blood: hence *lactescent*, milky.
LANGUOR —Faintness, Relaxation. Waste of Spirits.
Lapidescent.—Growing or turning to Stone.
Lassitude.—Weariness, Fatigue, obtuse Pain, with Listlessness to Motion.
Latent.—Hidden, concealed.
LATEX.—A Liquid of any kind, a Spring, or Source.
LENTOR.—Viscidness, Siziness.
Leucophlegmatic.—Abounding with cold Phlegm, which disposes the Body to be pale.

LITERATI.—The Learned.

Litigating.—Contending for, Contentious.

Lixivious.—Impregnated with some alkaline Salt, as Pot-ash or the like.

Lucrative.—Gainful, profitable ; sometimes, sordid.

LUMBAGO.—A very acute Pain about the Loins, frequently preceding the confluent Small-Pocks.

LUSUS INGENII.—A sporting, amusing Exercise of the Wit or Imagination ; in which an Author often asserts more than he thinks or believes.

Lymph.—A transparent, colourless animal Fluid, supposed by some the thinner Part of the *Serum* of the Blood.

M

TO macerate.—To infuse, or steep for a considerable Time, with, or without Heat.

Manuscript.—Sometimes wrote contractedly *M. S.* a Book or Pamphlet written, not printed.

Medical.—Physical.

To mediate.—To interpose, to be between.

MEDIUM.—Any Thing intervening, and sometimes involving, as, our common *Medium*, the Air ; also the just Temperature between Extremes.

Medullary,—consisting of, relating to, or resembling Marrow : as, the medullary Substance of the Brain.

MENSES.—See *Catamenia*.

MENSTRUUM.—Any Liquid used to dissolve different Subjects, or to extract the Virtues of different Ingredients, by Infusion, or Decoction.

Mental.—Intellectual, existing in, or relating to the Mind.

Metaphysical.—Relating to Metaphysics, or the Doctrine of the general Affections of Substances existing : also supernatural, when spoken of such *Phaenomena* as really exist in Nature ; but whose Causes exceed the Comprehension of the human Faculties ; such as Gravity, Magnetism, &c.

MIASMA, pl. MIASMATA—Infectious and invisible Particles.

Modification—The Act of giving any Thing or Subject, new accidental Differences.

Morbid.—Diseased, sickly.

Morbific.—Causing a Disease, or Sickness

MUCUS.—Any slimy or viscid animal Humour, as that from the Nose, &c.

Multifarious.—Manifold, that which consists of various Circumstances, and is capable of various Applications.

Multiform.—Having various Shapes or Appearances.

N

NAUSEA.—A Sickneſs at Stomach, a Qualm, an Averſion to Food, or to any particular Food.

Negative.—A Denial, the Thing denied.

NEXUS.—The Connexion, or Union.

NIGRUM PIGMENTUM.—A black, unctuous, or ſlimy Humour, lining the *Choroides*, one of the Coats of the Eye.

Non-attainment.—The not obtaining, not attaining or diſcovering.

NUBECULA.—A little Cloud, or Vapour.

O

O*Bnoxious*.—Subject to, liable.

Obtuse.—Not acute, or violent, not ſharp; dull, heavy.

To occupy.—To poſſeſs, to take up, to employ.

Odour.—A Smell, whether ſweet, foetid, or otherwiſe.

OEDEMA.—A Tumour, or Swelling, chiefly a moiſt and ſoft one.

OESOPHAGUS.—The Gullet.

Olfactory.—Pertaining to Smell, as, the Olfactory Nerves.

Opacity.—Cloudineſs, Want of Transparency.

Operative.—Endued with a Power of acting, whether more or leſs.

Operose.—Laborious, troubleſome, or tedious.

Ophthalmy.—An Inflammation of the Eyes.

Organ.—A natural, or artificial Inſtrument; as the Eye and Ear are the Organs of Sight and Hearing.

Organisation.—That Conſtruction of the Parts by which they are diſpoſed to co-operate.

Orgaſm.—Sudden and vehement Paſſion of different Kinds; violent Stimulation.

Orifice.—An Opening, or Inciſion, ſmall or large.

Oſcillation.—Moving, or vibrating, like a *Pendulum*.

To oſſify.—To grow or become bony.

OVARIUM.—The Ovary or Egg-bag, ſometimes termed the female Teſticle.

OVUM.—The Egg, contained there.

P

P**ABULUM**.—The Food, Fuel, or inherent Matter of a Diſeaſe.

Palpable.—Perceivable by the Touch, coarſe, eaſily perceived.

Pancreatic.—Of, or belonging to the **PANCREAS**, or Sweet Bread, a glandular Bowel of the Belly.

Paradoxical.—Contrary to the received Opinion, ſtrange, unexpected.

Parotid

Parotid.—Adjacent to the Ear, as the parotid, or salivary, Glands.

Paucity.—Fewness, the Smallness of Number or Quantity.

PEDUNCULI.—The Stalks.

Perforable.—Through which the Wind or Air may pass, airy, open.

Peristaltic.—(Motion) that contractile, and worm-like Motion of the Guts, by which their nutritious Contents are protruded into the lacteal Vessels, and their Fæces still lower.

PERISYSTOLE.—The short Pause between the Contraction and Dilatation of the Heart.

Permeable.—Vessels which are hollow throughout, so that Fluids may pass through them.

To *perspire.*—To steam through, or be expelled by the Pores of the Skin.

To *perwade.*—To make its way, to pass through.

PHAENOMENON, pl. *na*, an Appearance in the Works of Nature.

PHLEGMON, a Boil, an inflammatory Tumour.

Physiology.—The Doctrine of the Works of Nature; hence *Physiologist*, &c.

Pilosity.—Hairiness.

Plastic.—Having the Power or Faculty of giving Form.

Plenitude.—Fullness.

Plethoric.—Being of a full Habit.

Porous.—Having small Vents or Passages. See *permeable*.

Precise.—Exact, strict, accurate; hence *Precision*.

To *preclude.*—To shut out, to prevent, or anticipate.

To *preponderate.*—To exceed in Weight, to overbalance.

Prevalence.—Superior Power, Predominance.

Primary.—First, original, principal.

PRIMORDIA.—The Origins, the first Seeds, or indivisible Principles.

Procatartetic.—Foregoing, antecedent, pre-existent; as, the *procatartetic* Cause.

Process.—The progressive Course of a Disease, or of a chemical Operation.

Prolix.—Tedious, not concise.

Prominent.—Sticking out, or forward; hence *Prominence*.

Prophylactic.—Preservative, preventive.

To *protrude.*—To thrust forward.

Puberty.—That Term of Life, when the generative Faculty first appears.

Pulmonary.—Pertaining to the Lungs.

Pungency.—The Sensation of Sharpness, or great Heat on the Tongue, from pungent and acrid Substances.

Purulent.—Consisting of *Pus* or Matter.

Pus.—The Matter of a well digested Sore or Inflammation.

Pustule.—A small Swelling, Push, or Efflorescence, which generally suppurates.

Putrid.—Rotten, Corrupt ; hence *Putrescence*, *Putridity*.

Q.

QUA DATA PORTA RUET, *i. e.* It will break forth, where it meets with the least Resistance. Spoken of eruptive Matter.

To *Quadrate*.—To square, to suit, to agree or consist with.

Quadripartite.—That in which four Persons, or Parties, are concerned.

Quadrupeds.—Four-Footed Animals.

The *QUANTUM*.—The Quantity, the Dose.

QUOAD HUNC.—With Respect to this very Person, this Individual.

The *QUOMODO*.—The Manner *how*, or *by which*.

R

RABIES.—Rage, Madness ; particularly that of a Dog.

To *ramify*.—To part, or spread forth into Branches ; hence *Ramification*.

RATIO.—The Proportion by Comparison ; hence, the

RATIONALE.—The Enquiry into, and Account of, the Cause of any physical *Phaenomenon*, or Operation.

Recent.—New, lately occurring.

Recipient.—The Person, or Subject, receiving.

To *recur*.—To go, or come back, to revive in the Mind, to have Recourse to.

Redolent.—Sweet of Scent.

To *regenerate*.—To re-produce, to beget or breed anew.

REGIMEN.—The Manner of Living directed in any Disease, or under the Course or Operation of any Medicines.

Regurgitation.—Resorption, the Act of swallowing back again : an Over-swilling, or *Ingurgitation*.

Remiss.—Slack, not violent, not intense.

To *renovate*.—To renew, to reproduce, hence *Renovation*.

To *replenish*.—To fill abundantly, to stock ; hence *Replete*, *Repletion*, &c.

To *repress*.—To check, to repel, or subdue.

Respiration.—The Act of Breathing.

RETE MUCOSUM —A very fine Membrane, or Covering, between the *Cuticle* and *Cutis*, the Scarf and the true Skin.

Retortion.—A turning back, a receding from each other, a spreading ; as, a Retortion of the Lips of the Orifice in the inoculated Limb, or Part.

Retrocession.—A going, or giving back.

Retra-

Retrospection.—The Act of looking back, or of reviewing, reconsidering.

Rigid.—Stiff, hard, dry, inflexible.

S.

Salino-oleose.—Abounding with saline and oily Humours.

SALIVA.—The Spittle : hence *Salivary*, *Salivation*.

Sanguine.—Ruddy, abounding with Blood.

Sanity.—Health of Mind or Body.

SCAPULÆ.—The Shoulder-blades

Scrophulous.—Diseased with the *Scrophula*, or Kings Evil.

To secrete.—To separate, or fecern : hence *Secretion*, the Act of *Secreting*, or the Fluid secreted.

SEMEN.—The Seed, whether of Animals, Vegetables, or Diseases : hence

SEMINIUM.—The Seed-plot, Subject or Matter, wherein and by which the Seeds germinate, and are nourished.

SERIES.—The Succession, Order, or Concatenation of Things.

SERUM.—The thin watery Part of the Blood, as distinguished from the red, or more solid.

SESSILE.—Flat, depressed, not prominent, nor filled : as the *Sessile* Pustules or Pocks ; when not properly filled and suppurated.

Signatures.—Signs, Indications, Proofs.

Simile simili gaudet—Like to like, Birds of a Feather, &c.

Simuous.—Crooked and hollow, winding.

SOLEARIA.—Plasters, or Pultices, apply'd to the Soles of the Feet, and chiefly in acute Diseases.

Soluble.—Which may be dissolved.

To specify.—To mention with some Proof and Distinction.

Specific.—A Medicine appropriated to a particular Disease ; and limited by some to produce its Effect, without any sensible Discharge or Operation.

Spherical.—Round : hence *Sphericity*.

Spicular.—Sharp pointed, piercing, wounding : from *Spicula*, Darts, Stings.

Squalidity.—Filthiness, Nastiness.

STADIUM.—(a Furlong) any Stage or Term of a Disease, or of human Life.

STAMINA (Threads) apply'd by Physicians to animal Fibres ; as the Diversity of their Strength or Weakness, their Tension or Relaxation, is supposed to form different Constitutions.

STIMULUS.—(a Sting, a Spur or Goad) whatever excites Sensation acutely : hence to *stimulate*, *Stimulation*.

STRABISMUS.—A Squinting.

Strumous.—See *Scrophulous*.

Sub-acid.—Sourish, moderately Sour.

Subclavian.—A Vein under the *Clavicle*, or Collar-bone.

SUBSTRATUM.—The Thing, Part or Person subjected to any Effect or Operation.

SUCCEDANEUM.—Something substituted in the Place of another.

SUCCULENCE.—Juicyness. Moisture, *Succulent*, Adj.

Suffusion.—The Act of spreading, as it were, with a Stain, or Tincture.

Supercilious.—Proud, arbitrary, haughtily formal.

Superfoetation.—A Conception occurring before the Maturity or Exclusion of a former one.

To suppurate.—To ripen to Matter, as a Boil or Pustule: hence *Suppuration*.

Supputation.—Reckoning, Calculation.

Symbol.—A Type, a Representation of, or Allusion to something else.

Symptom.—A Sign, a Token; something occurring not necessarily from the original Cause of a Disease, but concurring with it.

System.—A Scheme, uniting many Things methodically under one Title or Subject.

SYSTOLE.—The Contraction of the Heart.

T.

Teguments, (Coverings) see *Integuments*.

Tension.—The State of being tight, braced, not relaxed.

Tenuity.—Smallness, Exility, Thinness.

Tepid.—Gently, mildly hot, agreeably warm.

To terminate.—To be limited, to end, to conclude.

Topic.—A general Head, or Subject: hence *topical*, local.

TORPOR.—Numbness, Dulness, Insensibility: hence *torpid*.

Transfusion.—Pouring from one Vessel into another: as the *Transfusion* of the Blood.

TRACHEA.—The Windpipe.

Transudatory.—That which sweats, or perspires, through.

To transmit.—To send from one Place or Part to another.

Tremors.—Morbid Tremblings.

Tubes.—Hollow Pipes: hence *tubular*, *Tubulosity*.

Turgescence.—The Act of swelling, of being expanded into more Space or Room.

V.

Valid.—Convincing, certain, forcible: hence *Validity*.

Variolous.—Of, or relating to the Small Pocks: hence *variolescent*, &c.

Vas

Vascular.—Consisting of, or relating to the Vessels of an Animal.

Vehicle.—(Any Carriage,) that Part of a Medicine which makes it potable, or less disagreeably swallowed.

Velocity.—Swiftness.

VELUM PUPILLAE.—A very delicate Membrane of the Eye, supposed peculiar to the Foetus, and disappearing after the Birth.

Ventricle.—The Stomach ; or certain Cavities in the Brain.

Vertebals.—Blood Vessels, ascending from the Back into the Brain.

Vertigo.—A Disease of the Head, attended with a seeming Rotation of Objects.

Vesication.—A Blistering.

VIRUS.—Poyson, particularly that received from an Animal, *quasi vi immissum*, as darted in with Force : hence *virulent*, &c.

VISCERA.—The Bowells.

Vivid.—Lively, brisk : hence *Vivification*, the Act or Faculty of imparting Life.

Unventilated.—Not aired.

Volatile.—Apt to fly, or evaporate, away.

Uterine.—Relating to the Womb.



E R R A T A.

- P.** 6, l. 17, insert *the* between *from* and *suppurated*.
P. 14, l. 14, for *visible* read *invisible*.
P. 78, l. 24, for *Can a* read *Canals*.
P. 94, l. 8, for *similiar* read *similar*.
P. 105, l. 21, for *Christain* read *Christian*.
P. 121, l. 13, for *Ligitations* read *Litigations*.
P. 206, l. 21, for *troblesome* read *troublesome*.
P. 230, l. 4, after *Solids* add *are*.
P. 231, l. 20, for *Suceffion* read *Succession*.
P. 233, l. 26, for *Terms* read *Term*.
P. 281, N* l. 3, for *Couse* read *Course*.
P. 286, l. 15, insert *I* between *and* and *have*.
P. 303, l. 24, for *two* read *too*.
P. 309, N* for 275 read 275.
P. 311, l. 5, dele one *the*.
P. 321, last Line, for *havea dmited* read *have ad-
mitted*.
P. 358, l. 23, for *Mananagment* read *Management*.
P. 371, N† for 321 read 321.
P. 393, l. 18, for *Acknowlegment* read *Acknowledge-
ment*.
P. 402, l. 11, for *majoricopia*, in one Word, read
majori copia.



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